# FAIR MARKET VALUE ANALYSIS
# FOR A FIBER OPTIC CABLE PERMIT
# IN
# NATIONAL MARINE SANCTURARIES

## Supporting Tables and Analysis

**Tab A**
**Calculation of Weighted Average Cost of Capital**

**Tab B**
**Calculation of Selected Right of Way Fees**

**Tab C**
**Income Based Valuation:**
**The Center for Applied Research, Inc.**

**Tab D**
**Income Based Valuation:**
**KMI Corp.**

## CALCULATION OF WEIGHTED AVERAGE COST OF CAPITAL

### Risk-Free Rate (Rf)

The average return on 20-year bonds during the period 1995 to 1999 was used. The time frame under consideration for both future cash flows and lease terms is 20 years or more. The past five years are relevant for most of the right-of-way transactions under consideration.

Return on 20-Year Treasury Bonds

| | |
|---|---|
| 1995 | 6.95 |
| 1996 | 6.83 |
| 1997 | 6.69 |
| 1998 | 5.72 |
| 1999 | 6.20 |

Average Risk-Free Rate (Rf) = 6.48

### Beta (B)

Four companies were chosen based on their business concentration in fiber-optics technology.

| | Company Beta |
|---|---|
| Level 3 Communications | 1.29 |
| Global Crossing | 2.09 |
| Broadwing | 1.24 |
| Qwest | 1.20 |
| Average Beta (B) = | 1.46 |

### Equity Risk Premium (Rp)

The long horizon expected equity risk premium was used, based on the S&P 500 benchmark. Data from Ibbotson Associates.

Equity Risk Premium (Rp) = 8.00

### Size Premium (A)

All of the companies under consideration have market capitalization figures above the $4.2 billion threshold quoted in Ibbotson Associates.

Size Premium (A) = 0.00

## Weighted Average Cost of Capital (WACC)

### Cost of Equity Capital (COEC)

| | Rf + B(Rp) + A = |
|---|---|
| Level 3 Communications | 16.80 |
| Global Crossing | 23.20 |
| Broadwing | 16.40 |
| Qwest | 16.08 |
| Industry Average | 18.12 |

### Debt-Equity Ratio

| | |
|---|---|
| Level 3 Communications | 1.13 |
| Global Crossing | 0.54 |
| Broadwing | 1.07 |
| Qwest | 0.34 |
| Average Debt-Equity Ratio = | 0.77 |

### Cost of Debt

The average of the Prime Lending Rate as reported by the Federal Reserve over the past five years, plus one percentage point.

| | |
|---|---|
| 1995 | 8.83 |
| 1996 | 8.27 |
| 1997 | 8.44 |
| 1998 | 8.35 |
| 1999 | 8.00 |
| Industry Average = | 9.38 |

### Weighted Average Cost of Capital (WACC)

$$WACC = \frac{Equity}{Equity + Debt} \times COEC + \frac{Debt}{Equity + Debt} \times Cost\ of\ Debt \times (1 - Tax\ Rate)$$

| | |
|---|---|
| Level 3 Communications | 10.87 |
| Global Crossing | 17.04 |
| Broadwing | 10.83 |
| Qwest | 13.43 |
| Industry Average | 12.68 |

### The Appropriate Discount Rate

Based on the above calculations, a nominal discount rate of 12.5 percent is deemed appropriate for discounting future cash flows. Based on the expected rate of inflation of 2.5 percent, the appropriate real discount rate is 10.0 percent. For discounting future contractual payments for right-of-way transactions, the cost of debt is used. The figure is rounded to 9.5 percent, with upward rounding resulting in conservative net present values.

# Weighted Average Cost of Capital

## Supporting Documentation

INDICES
04/24/00 10:25[ET]

| | | |
|---|---|---|
| DJIA | 10809.90 | -34.10 |
| NASDAQ | 3423.60 | -220.20 |
| S&P 500 | 1416.88 | -17.66 |
| NYSE | 639.10 | -0.30 |
| AMEX | 886.76 | -10.88 |

# LEVEL 3 COMMUNICATIONS INC

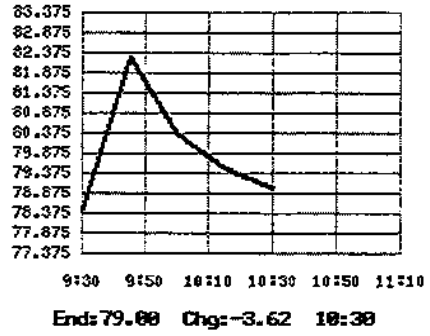
THOMSON INVESTORS NETWORK TIPSHEET

## Pricing and Performance

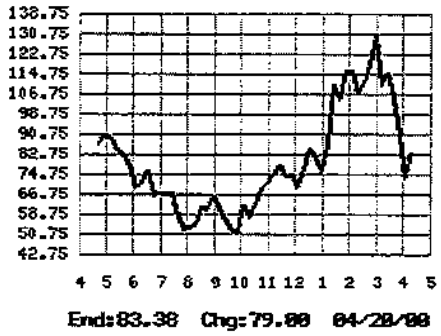
(Pricing Delayed 20 Minutes)

| Symbol | Last | Change | High | Low | Open | Prev.Close | Date | Time |
|---|---|---|---|---|---|---|---|---|
| LVLT | 80.125 | -3.250 | 82.875 | 77.500 | 81.375 | 83.375 | 04/24/00 | 10:40:35 |

Today's Performance




12 Month Performance




## Business Overview

Engages in the information services, communications and coal mining businesses through ownership of operating subsidiaries and substantial equity positions in public companies.

## Company Performance ($mil)

| | Revenue | EPS | Dividend Rate |
|---|---|---|---|
| 1999 | 515.0 | (1.46) | 0.00 |
| 1998 | 392.0 | 2.66 | 0.00 |
| 1997 | NA | NA | NA |
| 1996 | NA | NA | NA |
| 1995 | NA | NA | NA |
| Growth Rate (%) | NC | NC | NC |
| Industry Growth Rate (%) | 11.42 | 15.63 | (19.34) |

## Current Investment Ratings

Analyst Consensus & Trend


Insider Trend Index

CDA Investnet
NEGATIVE

**First Call Consensus Estimates (04/20/00)**

| Period | Mean EPS | # of Brokers | Year Ago EPS |
|---|---|---|---|
| Current Quarter (Jun/00) | -1.10 | 7 | -0.37 |
| Current Fiscal Year (Dec/00) | -4.60 | 13 | -1.70 |

**Pricing Momentum (04/20/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| 5 Day Moving Avg. | 80.93 | 61.84 | 53.16 |
| 10 Week Moving Avg. | 104.94 | 71.05 | 54.22 |
| 200 Day Moving Avg. | 79.37 | 59.79 | 54.11 |
| This week's momentum | 60 | 80 | 99 |
| Prior week's momentum | 58 | 82 | 105 |
| Five Year Beta | 1.29 | 1.41 | 1.00 |

**Short Interest (03/10/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| Short Interest Shares | 12,978,416 | 5,549,366 | 3,058,887 |
| Short Interest Ratio | 4.8 | 1.3 | 3.3 |

**Key Measures (04/20/00)**

Latest 12 Months/Most Recent Quarter

| | Company | Industry | S&P 500 |
|---|---|---|---|
| P/E | NE | 65.0 | 30.4 |
| Price/Book | 8.06 | 10.19 | 5.10 |
| Price/Sales | 48.20 | 4.78 | 2.19 |
| Price to Cash Flow | (347.3) | 33.5 | 17.6 |
| EPS | (1.89) | 0.99 | 1.78 |
| Dividend Rate | 0.00 | 0.07 | 0.64 |
| ROE | NE | 15.8 | 17.2 |
| Debt/Equity | 1.13 | 0.29 | 1.04 |

**Company Snapshot**

| | |
|---|---|
| Exchange | NASDAQ National Markets |
| Industry | Processing Systems/Prods |
| Number of Employees | 1,225 |
| Chairman/CEO | James Q. Crowe |
| Address | 1025 Eldorado Blvd, Broomfield, CO, 80021 |
| Phone | (720) 888-1000 |
| Dividend Reinvestment Plan | NO |
| Last Reported Ex-Dividend Date | NA |
| Dividends Paid per Share YTD | 0.00 |
| Shares Out. (mil) 04/19/00 | 341.07 |
| Market Cap. (mil) 04/20/00 | 28,437.21 |
| Last Stock Split Factor 08/10/98 | 2 for 1 |

*Financial Data provided by Media General Financial Services*

INDICES
04/24/00 10:25ET

| | | |
|---|---|---|
| DJIA | 10809.90 | -34.16 |
| NASDAQ | 3423.60 | -220.20 |
| S&P 500 | 1416.88 | -17.66 |
| NYSE | 639.10 | -8.30 |
| AMEX | 886.76 | -10.88 |

# GLOBAL CROSSING LTD

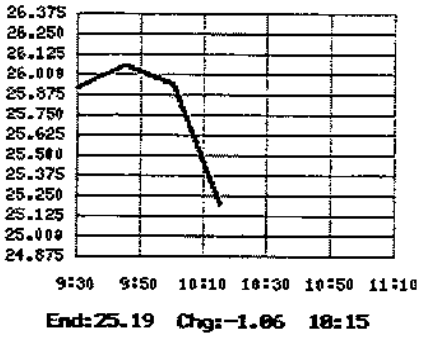
THOMSON INVESTORS NETWORK
TIPSHEET

## Pricing and Performance

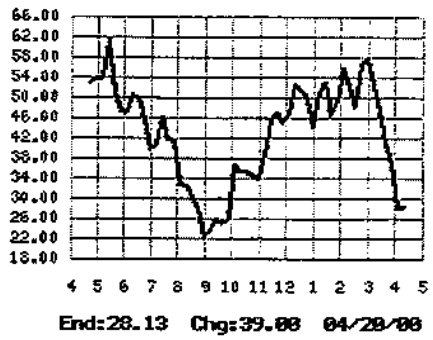
(Pricing Delayed 20 Minutes)

| Symbol | Last | Change | High | Low | Open | Prev.Close | Date | Time |
|---|---|---|---|---|---|---|---|---|
| GBLX | 25.188 | -2.938 | 27.000 | 25.000 | 27.000 | 28.125 | 04/24/00 | 10:34:53 |

### Today's Performance




### 12 Month Performance




## Business Overview

The world's first independent provider of global long distance telecommunications facilities and services, utilizing a network of undersea digital fiber-optic cable systems and associated terrestrial backhaul capacity.

## Company Performance ($mil)

| | Revenue | EPS | Dividend Rate |
|---|---|---|---|
| 1999 | 1,664.8 | (0.27) | 0.00 |
| 1998 | 424.1 | (0.38) | 0.00 |
| 1997 | NA | NA | NA |
| 1996 | NA | NA | NA |
| 1995 | NA | NA | NA |
| Growth Rate (%) | NC | NC | NC |
| Industry Growth Rate (%) | 31.96 | (0.85) | (18.68) |

## Current Investment Ratings

Analyst Consensus & Trend


Insider Trend Index


**First Call Consensus Estimates (04/20/00)**

| Period | Mean EPS | # of Brokers | Year Ago EPS |
|---|---|---|---|
| Current Quarter (Mar/00) | -0.39 | 3 | 0.00 |
| Current Fiscal Year (Dec/00) | -1.71 | 7 | -0.37 |

**Pricing Momentum (04/20/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| 5 Day Moving Avg. | 28.79 | 50.95 | 53.16 |
| 10 Week Moving Avg. | 45.56 | 60.63 | 54.22 |
| 200 Day Moving Avg. | 40.75 | 54.02 | 54.11 |
| This week's momentum | 33 | 70 | 99 |
| Prior week's momentum | 40 | 75 | 105 |
| Five Year Beta | 2.09 | 0.92 | 1.00 |

**Short Interest (03/10/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| Short Interest Shares | 29,720,627 | 4,972,593 | 3,058,887 |
| Short Interest Ratio | 2.2 | 10.1 | 3.3 |

**Key Measures (04/20/00)**

Latest 12 Months/Most Recent Quarter

| | Company | Industry | S&P 500 |
|---|---|---|---|
| P/E | NE | 35.2 | 30.4 |
| Price/Book | 2.38 | 5.29 | 5.10 |
| Price/Sales | 13.14 | 4.16 | 2.19 |
| Price to Cash Flow | 127.9 | 13.5 | 17.6 |
| EPS | (0.15) | 1.45 | 1.78 |
| Dividend Rate | 0.00 | 0.55 | 0.64 |
| ROE | NE | 12.0 | 17.2 |
| Debt/Equity | 0.54 | 0.66 | 1.04 |

**Company Snapshot**

| | |
|---|---|
| Exchange | NASDAQ National Markets |
| Industry | Telecom Services/Foreign |
| Number of Employees | 12,400 |
| Chairman/CEO | Leo J. Hindery, Jr. |
| Address | Wessex House, 45 Reid Street, Hamilton, BU, HM12 |
| Phone | (441) 296-8600 |
| Dividend Reinvestment Plan | NO |
| Last Reported Ex-Dividend Date | NA |
| Dividends Paid per Share YTD | 0.00 |
| Shares Out. (mil) 03/17/00 | 779.71 |
| Market Cap. (mil) 04/20/00 | 21,929.46 |
| Last Stock Split Factor 03/10/99 | 2 for 1 |

*Financial Data provided by Media General Financial Services*

INDICES
04/24/00 11:15ET

| | | |
|---|---|---|
| DJIA | 10833.80 | -10.20 |
| NASDAQ | 3439.84 | -204.06 |
| S&P 500 | 1422.57 | -11.97 |
| NYSE | 646.50 | 1.10 |
| AMEX | 878.53 | -19.11 |

# BROADWING INC

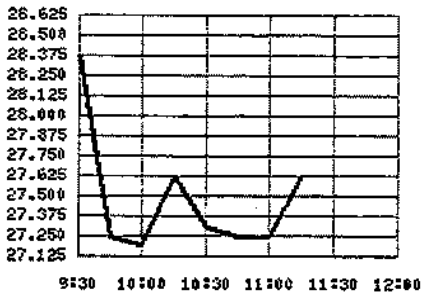
THOMSON INVESTORS NETWORK TIPSHEET

## Pricing and Performance

(Pricing Delayed 20 Minutes)

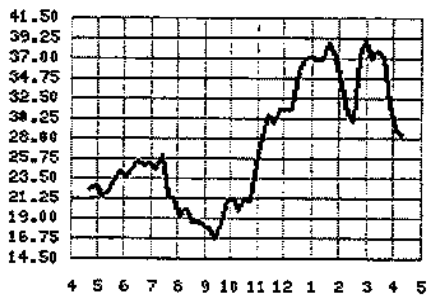
| Symbol | Last | Change | High | Low | Open | Prev.Close | Date | Time |
|---|---|---|---|---|---|---|---|---|
| BRW | 27.375 | -1.000 | 28.375 | 26.875 | 28.375 | 28.375 | 04/24/00 | 11:27:59 |

### Today's Performance




End:27.62 Chg:-0.75 11:15

### 12 Month Performance




End:28.38 Chg:22.19 04/28/99

## Business Overview

A diversified telecommunications services holding company. Company operates in the following segments: local communications, broadband, wireless, directory and other communications.

## Company Performance ($mil)

| | Revenue | EPS | Dividend Rate |
|---|---|---|---|
| 1999 | 1,131.3 | 0.20 | 0.30 |
| 1998 | 885.0 | 1.08 | 0.40 |
| 1997 | 1,756.8 | 0.10 | 0.40 |
| 1996 | 1,573.6 | 1.35 | 0.40 |
| 1995 | 1,336.0 | (0.25) | 0.40 |
| Growth Rate (%) | (4.31) | NC | (4.02) |
| Industry Growth Rate (%) | 15.31 | (15.90) | (15.34) |

## Current Investment Ratings

Analyst Consensus & Trend


Insider Trend Index

CDA Investnet
POSITIVE

**First Call Consensus Estimates (04/20/00)**

| Period | Mean EPS | # of Brokers | Year Ago EPS |
|---|---|---|---|
| Current Quarter (Mar/00) | -0.39 | 8 | 0.18 |
| Current Fiscal Year (Dec/00) | -0.97 | 11 | 0.36 |

**Pricing Momentum (04/20/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| 5 Day Moving Avg. | 28.44 | 49.43 | 53.16 |
| 10 Week Moving Avg. | 33.70 | 52.43 | 54.22 |
| 200 Day Moving Avg. | 27.85 | 51.57 | 54.11 |
| This week's momentum | 74 | 91 | 99 |
| Prior week's momentum | 91 | 101 | 105 |
| Five Year Beta | 1.24 | 0.67 | 1.00 |

**Short Interest (03/10/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| Short Interest Shares | 0 | 8,609,376 | 3,058,887 |
| Short Interest Ratio | 0.0 | 2.2 | 3.3 |

**Key Measures (04/20/00)**

Latest 12 Months/Most Recent Quarter

| | Company | Industry | S&P 500 |
|---|---|---|---|
| P/E | 118.1 | 40.4 | 30.4 |
| Price/Book | 2.87 | 6.45 | 5.10 |
| Price/Sales | 5.08 | 3.46 | 2.19 |
| Price to Cash Flow | 26.2 | 13.2 | 17.6 |
| EPS | 0.24 | 1.23 | 1.78 |
| Dividend Rate | 0.40 | 0.89 | 0.64 |
| ROE | 1.9 | 17.5 | 17.2 |
| Debt/Equity | 1.07 | 1.11 | 1.04 |

**Company Snapshot**

| | |
|---|---|
| Exchange | New York Stock Exchange |
| Industry | Telecom Services/Domestic |
| Number of Employees | 6,000 |
| Chairman/CEO | Richard G. Ellenberger |
| Address | 201 East Fourth Street, Cincinnati, OH, 45202 |
| Phone | (513) 397-9900 |
| Dividend Reinvestment Plan | YES |
| Last Reported Ex-Dividend Date | 07/02/99 |
| Dividends Paid per Share YTD | 0.30 |
| Shares Out. (mil) 03/22/00 | 202.55 |
| Market Cap. (mil) 04/20/00 | 5,747.38 |
| Last Stock Split Factor 06/02/97 | 2 for 1 |

*Financial Data provided by Media General Financial Services*

THOMSON INVESTORS NETWORK

# SCOTTRADE





INDICES
04/24/00 10:25ET

| | | |
|---|---|---|
| DJIA | 10809.90 | -34.10 |
| NASDAQ | 3423.60 | -220.20 |
| S&P 500 | 1416.88 | -17.66 |
| NYSE | 639.10 | -0.30 |
| AMEX | 886.76 | -10.88 |

## QWEST COMMUNICATION INTL INC

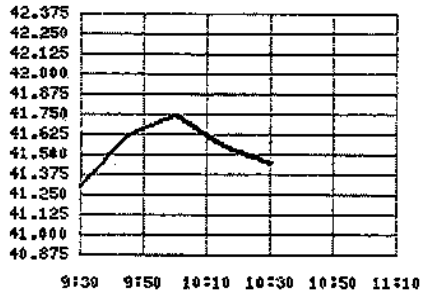
THOMSON INVESTORS NETWORK TIPSHEET

### Pricing and Performance

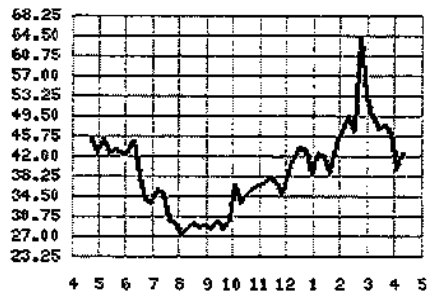
(Pricing Delayed 20 Minutes)

| Symbol | Last | Change | High | Low | Open | Prev.Close | Date | Time |
|---|---|---|---|---|---|---|---|---|
| Q | 41.312 | -1.188 | 41.875 | 41.062 | 41.688 | 42.500 | 04/24/00 | 10:48:50 |

Today's Performance




12 Month Performance




### Business Overview

Provider of communications services to interexchange carriers and other communications entities and to businesses and consumers, and it constructs and installs fiber optic communications systems for interexchange carriers and other communications entities.

### Company Performance ($mil)

| | Revenue | EPS | Dividend Rate |
|---|---|---|---|
| 1999 | 3,927.6 | 0.60 | 0.00 |
| 1998 | 2,242.6 | (1.51) | 0.00 |
| 1997 | 696.7 | 0.04 | 0.00 |
| 1996 | 231.0 | (0.02) | 0.00 |
| 1995 | NA | NA | NA |
| Growth Rate (%) | NC | NC | NC |
| Industry Growth Rate (%) | 15.31 | (15.90) | (15.34) |

### Current Investment Ratings

Analyst Consensus & Trend


Insider Trend Index


**First Call Consensus Estimates (04/20/00)**

| Period | Mean EPS | # of Brokers | Year Ago EPS |
|---|---|---|---|
| Current Quarter (Mar/00) | 0.03 | 21 | 0.01 |
| Current Fiscal Year (Dec/00) | 0.19 | 23 | 0.09 |

**Pricing Momentum (04/20/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| 5 Day Moving Avg. | 41.70 | 49.43 | 53.16 |
| 10 Week Moving Avg. | 48.79 | 52.43 | 54.22 |
| 200 Day Moving Avg. | 38.38 | 51.57 | 54.11 |
| This week's momentum | 80 | 91 | 99 |
| Prior week's momentum | 88 | 101 | 105 |
| Five Year Beta | 1.20 | 0.67 | 1.00 |

**Short Interest (03/10/00)**

| | Company | Industry | S&P 500 |
|---|---|---|---|
| Short Interest Shares | 75,993,604 | 8,609,376 | 3,058,887 |
| Short Interest Ratio | 6.5 | 2.2 | 3.3 |

**Key Measures (04/20/00)**

Latest 12 Months/Most Recent Quarter

| | Company | Industry | S&P 500 |
|---|---|---|---|
| P/E | 69.6 | 40.4 | 30.4 |
| Price/Book | 4.55 | 6.45 | 5.10 |
| Price/Sales | 7.47 | 3.46 | 2.19 |
| Price to Cash Flow | 37.0 - | 13.2 | 17.6 |
| EPS | 0.61 | 1.23 | 1.78 |
| Dividend Rate | 0.00 | 0.89 | 0.64 |
| ROE | 6.7 | 17.5 | 17.2 |
| Debt/Equity | 0.34 | 1.11 | 1.04 |

**Company Snapshot**

| | |
|---|---|
| Exchange | New York Stock Exchange |
| Industry | Telecom Services/Domestic |
| Number of Employees | 10,000 |
| Chairman/CEO | Joseph P. Nacchio |
| Address | 700 Qwest Tower, 555 Seventeenth Street, Denver, CO, 80202 |
| Phone | (303) 992-1400 |
| Dividend Reinvestment Plan | NO |
| Last Reported Ex-Dividend Date | NA |
| Dividends Paid per Share YTD | 0.00 |
| Shares Out. (mil) 04/20/00 | 750.00 |
| Market Cap. (mil) 04/20/00 | 31,875.00 |
| Last Stock Split Factor 05/25/99 | 2 for 1 |

*Financial Data provided by Media General Financial Services*

RIFLGFCY20_N.A:
R.*:Rate
R.I.*:Rate of interest in money and capital markets
R.I.F.*:Federal Reserve System
R.I.F.L.:Long-term or capital market
R.I.F.L.G.:Government securities
R.I.F.L.G.F.:Federal
R.I.F.L.G.F.C.*:Constant maturity
R.I.F.L.G.F.C.Y20.:Twenty-year
_N.:Not seasonally adjusted
.A:Twelve months ending December

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NOTE: The 20-year constant maturity estimated by the Department of the Treasury is based on outstanding Treasury bonds with approximately 20 years remaining to maturity. This series is not identical to the historical 20-year constant maturity series which was based on actual 20-year bonds issued through 1986. YIELDS ON TREASURY SECURITIES AT CONSTANT, FIXED MATURITY ARE CONSTRUCTED BY THE TREASURY DEPARTMENT, BASED ON THE MOST ACTIVELY TRADED MARKETABLE TREASURY SECURITIES. YIELDS ON THESE ISSUES ARE BASED ON COMPOSITE QUOTES REPORTED BY U.S. GOVERNMENT SECURITIES DEALERS TO THE FEDERAL RESERVE BANK OF NEW YORK. TO OBTAIN THE CONSTANT MATURITY YIELDS, PERSONNEL AT TREASURY CONSTRUCT A YIELD CURVE EACH BUSINESS DAY AND YIELD VALUES ARE THEN READ FROM THE CURVE AT FIXED MATURITIES.

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Released on 04/17/2000

| | tcm20y |
|---|---|
| 1993 | 6.29 |
| 1994 | 7.49 |
| 1995 | 6.95 |
| 1996 | 6.83 |
| 1997 | 6.69 |
| 1998 | 5.72 |
| 1999 | 6.20 |

RIFSPBLP_N.A:
R.*:Rate
R.I.*:Rate of interest in money and capital markets
R.I.F.*:Federal Reserve System
R.I.F.S.*:Short-term or money market
R.I.F.S.P.*:Private securities
R.I.F.S.P.BL.*:Bank loans to business
R.I.F.S.P.BL.P.:Prime rate
_N.:Not seasonally adjusted
.A:Twelve months ending December

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THE PRIME RATE IS A 7-DAY RATE WITH WEEKENDS AND HOLIDAYS CONTAINING THE PRIOR BUSINESS DAY'S VALUE. THE DAILY PRIME IS THEREFORE MORE SUITABLE FOR MANY PURPOSES.

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Released on 04/17/2000

| | prime |
|---|---|
| 1956 | 3.77 |
| 1957 | 4.20 |
| 1958 | 3.83 |
| 1959 | 4.48 |
| 1960 | 4.82 |
| 1961 | 4.50 |
| 1962 | 4.50 |
| 1963 | 4.50 |
| 1964 | 4.50 |
| 1965 | 4.54 |
| 1966 | 5.63 |
| 1967 | 5.63 |
| 1968 | 6.31 |
| 1969 | 7.96 |
| 1970 | 7.91 |
| 1971 | 5.73 |
| 1972 | 5.25 |
| 1973 | 8.03 |
| 1974 | 10.81 |
| 1975 | 7.86 |
| 1976 | 6.84 |
| 1977 | 6.83 |
| 1978 | 9.06 |
| 1979 | 12.67 |
| 1980 | 15.26 |
| 1981 | 18.87 |
| 1982 | 14.85 |
| 1983 | 10.79 |
| 1984 | 12.04 |
| 1985 | 9.93 |
| 1986 | 8.33 |
| 1987 | 8.21 |
| 1988 | 9.32 |
| 1989 | 10.87 |
| 1990 | 10.01 |
| 1991 | 8.46 |
| 1992 | 6.25 |
| 1993 | 6.00 |
| 1994 | 7.15 |
| 1995 | 8.83 |

| | |
|---|---|
| 1996 | 8.27 |
| 1997 | 8.44 |
| 1998 | 8.35 |
| 1999 | 8.00 |

# Stocks, Bonds, Bills, and Inflation: Valuation Edition 1999 Yearbook.



Published by:

**Ibbotson Associates**
**225 North Michigan Avenue, Suite 700**
**Chicago, Illinois 60601-7676**
**Telephone (312) 616-1620**
**Fax (312) 616-0404**
**www.ibbotson.com**

**ISBN 1-882864-08-5**
**ISSN 1523-343X**

Additional copies of this Yearbook may be obtained for $120, plus shipping and handling, by calling or writing to the address above. Additional product information can be found at the end of this publication or at our Cost of Capital Center, http://valuation.ibbotson.com. Order forms are provided inside the back cover. Information about volume discounts, companion publication and consulting services may also be obtained.

Table D-1 **Key Variables in Estimating the Cost of Capital**

| | Value |
|---|---|
| **Yields (Riskless Rates)**[1] | |
| *Long-term (20-year) U.S. Treasury Coupon Bond Yield* | 5.4% |
| *Intermediate-term (5-year) U.S. Treasury Coupon Note Yield* | 4.7 |
| *Short-term (30-day ) U.S. Treasury Bill Yield* | 4.5 |
| **Fixed Income Risk Premia**[2] | |
| *Expected default premium:* long-term corporate bond total returns minus long-term government bond total returns | 0.4 |
| *Expected long-term horizon premium:* long-term government bond income returns minus U.S. Treasury bill total returns† | 1.4 |
| *Expected intermediate-term horizon premium:* intermediate-term government bond income returns minus U.S. Treasury bill total returns† | 1.0 |

| | Market Benchmark | |
|---|---|---|
| | S&P 500 | NYSE 1-2 |
| **Equity Risk Premia**[3] | | |
| *Long-horizon expected equity risk premium:* large company stock total returns minus long-term government bond income returns | 8.0% | 7.1% |
| *Intermediate-horizon expected equity risk premium:* large company stock total returns minus intermediate-term government bond income returns | 8.4 | 7.5 |
| *Short-horizon expected equity risk premium:* large company stock total returns minus U.S. Treasury bill total returns† | 9.4 | 8.5 |
| **Size Premia**[4] | | |
| *Expected mid-capitalization equity size premium:* capitalization between $918 and $4,200 million | 0.5 | 1.0 |
| *Expected low-capitalization equity size premium:* capitalization between $252 and $918 million | 1.1 | 1.5 |
| *Expected micro-capitalization equity size premium:* capitalization below $252 million | 2.6 | 3.0 |

[1] As of December 31, 1998. Maturities are approximate.

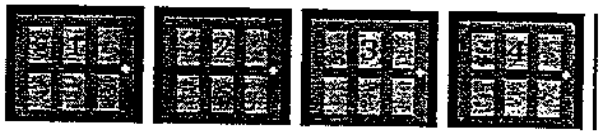
[2] Expected risk premia for fixed income are based on the differences of historical arithmetic mean returns from 1970–1998.

[3] Expected risk premia for equities are based on the differences of historical arithmetic mean returns from 1926–1998.

[4] See Chapter 4 for complete methodology.

† For U.S. Treasury bills, the income return and total return are the same.

Note: Examples of how these variables can be used are found in Chapter 1, pages 18 and 23.





# Prices: Annual

| Prices Categories | History 1996 | 1997 | 1998 | Forecast 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|
| CPI: All Items. (Index 82-84=100, SA) | 157.0 | 160.6 | 163.1 | 166.7 | 171.1 | 175.3 |
| % Chg. Year Ago | 2.9 | 2.3 | 1.6 | 2.2 | 2.6 | 2.5 |
| CPI: ex Food And Energy. (Index 82-84=100, SA) | 165.8 | 169.7 | 173.7 | 177.3 | 181.3 | 186.3 |
| % Chg. Year Ago | 2.7 | 2.4 | 2.3 | 2.1 | 2.3 | 2.8 |
| CPI: Medical Care. (Index 82-84=100, SA) | 228.5 | 234.8 | 242.4 | 250.8 | 259.9 | 269.8 |
| % Chg. Year Ago | 3.5 | 2.8 | 3.2 | 3.5 | 3.6 | 3.8 |
| PPI. (Index = 82, SA) | 131.3 | 131.8 | 130.7 | 133.0 | 137.2 | 139.3 |
| % Chg. Year Ago | 2.6 | 0.4 | -0.9 | 1.8 | 3.1 | 1.5 |
| PPI: Intermediate Goods. (Index = 82, SA) | 125.7 | 125.7 | 123.1 | 123.2 | 129.2 | 131.9 |
| % Chg. Year Ago | 0.6 | -0.1 | -2.1 | 0.1 | 4.9 | 2.0 |
| PPI: Crude Goods. (Index = 82, SA) | 113.8 | 111.2 | 96.7 | 98.2 | 105.8 | 88.3 |
| % Chg. Year Ago | 10.8 | -2.3 | -13.0 | 1.5 | 7.8 | -16.6 |
| West Texas Intermediate, ($/Bbl) | 22.2 | 20.6 | 14.4 | 19.2 | 25.0 | 21.3 |

**Forecasts**

**Select another category to view:**

Prices

**Select the frequency by which to view the data:**

○ Annual ◉ Quarterly

See the information

## Calculation of Selected Right-of-Way Fees

| Source | Terms | ROW Length (miles) | Date | Fee ($/mile) | Notes and Calculations |
|---|---|---|---|---|---|
| "Fiber Optic Corridor: Market Data Summary" (Confidential) | $1.00 per foot per year per conduit, escalated at CPI every five years | 11.0 | Sep-99 | 77,314 | 1) This is a per-conduit fee. Total ROW fee would be higher.<br>2) 20-year lease with year-20 option at market rates. Converted to perpetual lease for purposes of this analysis.<br>3) Calculation assumes annual inflation adjustments.<br>4) 5280*[(1+0.025)/(0.095-0.025)] |
| "Fiber Optic Corridor: Market Data Summary" (Confidential) | $1.00 per foot per year per conduit, escalated at 3% annual rate | 10.6 | Jan-99 | 83,262 | 1) This is a per-conduit fee. Total ROW fee would be higher.<br>2) 5280*[(1+0.03)/(0.095-0.03)] |
| "Fiber Optic Corridor: Market Data Summary" (Confidential) | $0.498 per foot per year, escalated by Implicit Price Deflator | 15.3 | Jul-86 | 38,503 | 1) One time "right to construct" payment is not included<br>2) 0.498*5280 * [(1+0.025)/(0.095-0.025)] |
| "Summary of Fees for Occupying WisDOT" | $7,000 per mile per year | 45.9 | May-96 | 73,684 | 1) Multiple line items in source document combined.<br>2) Assumed to be yearly fees based on email from Roy Nagy, attached.<br>3) 7000/.095 |
| "Summary of Fees for Occupying WisDOT" | $5,500 per mile per year | 262.7 | Apr-98 | 57,895 | 1) Multiple line items in source document combined.<br>2) Assumed to be yearly fees based on email from Roy Nagy, attached.<br>3) 5500/.095 |
| "Summary of Fees for Occupying WisDOT" | $8,000 per mile per year | 7.0 | Aug-98 | 84,211 | 1) Assumed to be yearly fees based on email from Roy Nagy, attached.<br>2) 8000/.095 |
| Massachusetts Turnpike Authority/Level 3 | Right of way is 132.8 miles. $2 million up front fee for 1-20 interducts. Each interduct has additional rental rates specified based on quantity of fiber. See contract for specific details. Rental rates are escalated annually at CPI, with a minimum of 2.5 percent annual increase. | 132.8 | Apr-99 | 109,734 | 1) Figure represents fees per interduct, total right-of-way fee would be considerably higher.<br>2) Up to 20 interducts specified in contract: midpoint of 10 interducts assumed for allocation of up-front fee.<br>3) Of examples given for likely future payments based on fiber installation, the lowest figure is selected here, namely, $981,551.<br>4) 2,000,000/10/132.8 + 981,551/132.8 * ((1+0.025)/(0.095-0.025)) |

## Calculation of Selected Right-of-Way Fees

| | | | | | | |
|---|---|---|---|---|---|---|
| | Massachusetts Turnpike Authority/Williams Communications | Right of way is 133.6 miles. Contract calls for up to six interducts, each interduct has rental rates specified based on quantity of fiber. See contract for specific details. Rental rates are escalated annually at CPI, with a minimum of 2.5 percent annual increase. | 133.6 | Mar-99 | 115,430 | 1) Figure represents fees per interduct, total right-of-way fee would be considerably higher.<br>2) Of examples given for likely future payments based on fiber installation, the lowest figure is selected here, namely, $1,053,169.<br>3) 1,053,169/133.6 * [(1+0.025)/(0.095-0.025)] |
| | AT&T Class Action | One-time fee of $45,000 in legal settlement plus $11,500 - $22,500 per mile in original fees to railroads, plus $15,000 per mile in attorney's fees. | 80.0 | May-99 | 71,500 | 1) Original fees to railroads ranged from $11,500 to $22,500. The lower figure is used here.<br>3) 45000+11500+15000 |
| | Austin Capital Metro | $12,000 per mile per year | 31.0 | Nov-98 | 126,316 | 1) 12000/.095 |
| | Easement Sales and Leases for Land Only | $1.52 per foot | 2,054.0 | Apr-87 | 8,026 | 1) Two line items in source document were combined.<br>2) 1.52*5280 |
| | Easement Sales and Leases for Land Only | $2.25 per foot | 42.0 | Jun-93 | 11,880 | 1) Date is given as 1993, assumed to be June, 1993.<br>2) 2.25*5280 |
| | Easement Sales and Leases for Land Only | $1.50 per ft per year | 5.7 | Jun-95 | 58,358 | 1) Date is given as mid-1995, assumed to be June, 1995.<br>2) 1.5/0.095*5280 |
| | Easement Sales and Leases for Land Only | $1.75 per foot per year | 60.0 | Dec-95 | 97,263 | 1) Two line items in source document combined.<br>2) 1.75/0.095*5280 |
| | Easement Sales and Leases for Land Only | $1.80 per ft per year | 19.0 | Apr-97 | 100,042 | 1) 1.8/0.095*5280 |
| | "Comparable Easements/Leases or Permits - Other" | $9.42 per foot, 20-year term | 12.0 | Jun-93 | 59,411 | 1) Date is given as 1993, assumed to be June, 1993.<br>2) 5280*9.42/(1-1/1.095^20) |
| | "Comparable Easements/Leases or Permits - Other" | $1.33 per foot per year | 35.0 | Jun-86 | 73,920 | 1) Date is given as 1986, assumed to be June, 1986.<br>2) 1.33/0.095*5280 |
| | "Comparable Easements/Leases or Permits - Other" | $1.49 per foot per year | 28.0 | Jun-97 | 82,813 | 1) Date is given as 1997, assumed to be June, 1997.<br>2) 1.49/0.095*5280 |
| | "Comparable Easements/Leases or Permits - Other" | $1.33 per foot per year | 50.0 | Jun-97 | 73,920 | 1) Date is given as 1997, assumed to be June, 1997.<br>2) 1.33/0.095*5280 |

## Calculation of Selected Right-of-Way Fees

| | | | | | | |
|---|---|---|---|---|---|---|
| | "Comparable Easements/Leases or Permits - Other" | $1.70 per year | 20.0 | Jun-97 | 94,484 | 1) Date is given as 1997, assumed to be June, 1997.<br>2) 1.70/0.095*5280 |
| | | | | | | |
| | General Notes: | | | | | |
| | | | | | | |
| | 1) Only rights of way greater than five miles in length are included. | | | | | |
| | 2) Some contracts vary in length of term. All terms converted to perpetuity for this analysis. | | | | | |
| | 3) A discount rate of 9.5 percent was used to find the net present value of future payments, based on the estimated cost of debt. See table entitled "Weighted Average Cost of Capital." | | | | | |
| | 4) Contracts that include in-kind payments, such as free use of fiber-optic capacity, are excluded. | | | | | |

# Calculation of Selected Right-of-Way Fees

## Supporting Documentation

**Subject: Longitudinal Occupancy Rates for Telecommunication Installations**
**Date:** Wed, 15 Dec 1999 13:16:10 -0500
**From:** Peter_Schultze@dot.ca.gov
**To:** david.chapman@noaa.gov

fyi
---------- Forwarded by Peter Schultze/D03/Caltrans/CAGov on 12/15/99 10:15 AM ----------

(Embedded image moved to file: pic02518.pcx) Fred Gay 12/09/99 02:27 PM (Embedded image moved to file: pic00689.pcx)

To: Linda Fong/HQ/Caltrans/CAGov@DOT, Zouheir Barazi/HQ/Caltrans/CAGov@DOT, Gene Mattocks/HQ/Caltrans/CAGov@DOT, Peter Schultze/D03/Caltrans/CAGov@DOT, Lynn Trexel/HQ/Caltrans/CAGov@DOT
cc:
Subject: Longitudinal Occupancy Rates for Telecommunication Installations

---------- Forwarded by Fred Gay/HQ/Caltrans/CAGov on 12/09/99 02:19 PM ----------

Roy Nagy
12/09/99 01:45 PM

To: Carl Williams/HQ/Caltrans/CAGov@DOT, Tony Harris/HQ/Caltrans/CAGov@DOT, Ken De Crescenzo/HQ/Caltrans/CAGov@DOT
cc: (bcc: Fred Gay/HQ/Caltrans/CAGov)
Subject: Longitudinal Occupancy Rates for Telecommunication Installations

Wisconsin DOT has an active program to charge for fiber optic installations within their access restricted rights of way. One attachment in their following e-mail includes a list of all their contracts including the length of the installation and the compensation which is on a per mile basis. They currently have 322.2 miles of R/W leased (20 years) for fiber with a current income of $1,883,425 per year. This program commenced in 1996. The second attachment shows their pricing matrix. The per mile price varies based on the length of the installation and the ADT. Most of their installations have been for one conduit only. They are now receiving requests to install multiple conduits which should give them an opportunity to charge additional per mile fees.
---------- Forwarded by Roy Nagy/HQ/Caltrans/CAGov on 12/09/99 01:37 PM ----------

"Fasick, Robert" <robert.fasick@dot.state.wi.us> on 12/09/99 09:36:32 AM

To: Roy Nagy/HQ/Caltrans/CAGov

## SUMMARY of FEES for OCCUPYING WisDOT's LIMITED ACCESS RIGHT-OF-WAY by TELECOMMUNICATION COMPANIES

| Date | Company | County | Hwy | Termini | Side | Miles | Price/Mile | Fee | Term |
|---|---|---|---|---|---|---|---|---|---|
| 5/16/96 | Norlight (MRC Telecom) | Trempealeau | 94 | USH 10 - Trempealeau/Eau Claire Co line | N | 21.2 | $7,000 | $148,400 | 20 |
| 5/16/96 | Norlight (MRC Telecom) | Eau Claire | 94 | Trempealeau/Eau Claire Co line - 1/4-mile west of STH 37 | N | 1.3 | $7,000 | $9,100 | 20 |
| 5/16/96 | Norlight (MRC Telecom) | Portage | 39 | Second Street (Stevens Point) - Portage/Marathon Co line | N | 13.7 | $7,000 | $96,075 | 20 |
| 5/16/96 | Norlight (MRC Telecom) | Marathon | 39 | Portage/Marathon Co line - Business 51 (Wausau) | N | 9.7 | $7,000 | $67,900 | 20 |
| 4/8/98 | Qwest Comm Corp | St. Croix | 94 | STH 65 - St. Croix/Dunn Co line | S | 22.1 | $5,500 | $121,550 | 25 |
| 4/8/98 | Qwest Comm Corp | Dunn | 94 | St. Croix/Dunn - Dunn/Eau Claire Co line | S | 26.8 | $5,500 | $147,400 | 25 |
| 4/8/98 | Qwest Comm Corp | Eau Claire | 94 | Dunn/Eau Claire Co line - USH 12 | | 2.3 | $5,500 | $12,650 | 25 |
| 4/8/98 | Qwest Comm Corp | Eau Claire | 12 | IH94 - Union Pacific Railroad | | 3.7 | $5,500 | $20,350 | 25 |
| 4/8/98 | Qwest Comm Corp | Eau Claire | 53 | UPRR - CTH Q (Birch St, Eau Claire) | | 0.3 | $5,500 | $1,650 | 25 |
| 4/8/98 | Qwest Comm Corp | Chippewa | 29 | CTH XX - Chippewa/Clark Co line | S | 14.6 | $5,500 | $80,300 | 25 |
| 4/8/98 | Qwest Comm Corp | Clark | 29 | Chippewa/Clark Co line - Townhall Road (Abbotsford) | S | 28.6 | $5,500 | $157,300 | 25 |
| 4/8/98 | Qwest Comm Corp | Marathon | 29 | IH39 - Marathon/Shawano Co line | S | 22.9 | $5,500 | $125,950 | 25 |
| 4/8/98 | Qwest Comm Corp | Shawano | 29 | Marathon/Shawano Co line - USH 45 | | 6.2 | $5,500 | $34,100 | 25 |
| 4/8/98 | Qwest Comm Corp | Shawano | 45 | STH 29 - Shawano/Waupaca Co line (Pella Swamp Rd) | | 17.5 | $5,500 | $96,250 | 25 |
| 4/8/98 | Qwest Comm Corp | Brown | 29 | STH 156 - USH 41 | | 8.0 | $5,500 | $44,000 | 25 |
| 4/8/98 | Qwest Comm Corp | Brown | 41 | STH 29 - Weitor Rd | | 2.3 | $5,500 | $12,650 | 25 |
| 4/8/98 | Qwest Comm Corp | Brown | 43 | STH 172 - Brown/Manitowoc Co line | | 19.3 | $5,500 | $106,150 | 25 |
| 4/8/98 | Qwest Comm Corp | Manitowoc | 43 | Brown/Manitowoc - Manitowoc/Sheboygan Co line | E | 32.6 | $5,500 | $179,300 | 25 |
| 4/8/98 | Qwest Comm Corp | Sheboygan | 43 | Manitowoc/Sheboygan - Sheboygan/Ozaukee Co line | E | 23.0 | $5,500 | $126,500 | 25 |
| 4/8/98 | Qwest Comm Corp | Ozaukee | 43 | Sheboygan/Ozaukee - Ozaukee/Milwaukee Co line | E | 28.0 | $5,500 | $154,000 | 25 |
| 4/8/98 | Qwest Comm Corp | Milwaukee | 43 | Ozaukee/Milwaukee Co line - Union Pacific Railroad | E | 4.2 | $5,500 | $23,100 | 25 |
| 4/8/98 | Qwest Comm Corp | Milwaukee | 794 | North and south of West Michigan Ave (Hoan Bridge area) | | 0.3 | $5,500 | $1,650 | 25 |
| 8/24/98 | TDS-Metrocom | Outagamie | 41 | CTH E (Ballard Rd, Appleton) - CTH J (Kaukauna) | S | 7.0 | $8,000 | $56,000 | 20 |
| 10/9/98 | Western WI Telecom | Eau Claire | 94 | CTH C - CTH ET (Eau Claire) | N | 1.1 | $10,000 | $11,000 | 20 |
| 11/4/98 | Marcus Cable (Wausau) | Portage | 39 | CTH HH - USH 10 (Stevens Point) | W | 2.0 | $8,000 | $16,000 | 20 |
| 6/24/99 | CenturyTel of Northern WI | Clark | 29 | Tieman Avenue to STH 73 (Thorp) | S | 0.75 | $10,000 | $7,500 | 20 |
| 10/6/99 | McLeod USA | Dane | 51 | Milwaukee St to Pedestrian Overpass | E | < 0.5 | $5,000(flat) | $5,000 | 20 |
| 10/6/99 | Spring Green CableComm | Iowa | 18/151 | CTH YZ - CTH HHH (Ridgeway) | N | 2.7 | $8,000 | $21,600 | 20 |
| | | | | | | | | | |
| | | | | **TOTALS** | | **322.2** | | **$1,883,425** | |

| $$ Breakdown by Fiscal Year: | |
|---|---|
| FY97 | $321,475 |
| FY98 | $0 |
| FY99 | $1,535,350 |
| FY00 | $26,600 |

| Project I.D. | Breakdown by company: | | | |
|---|---|---|---|---|
| 0106-11-99 | Norlight | 45.9 | | $321,475 |
| 0106-02-20 | Qwest Comm Corp | 262.7 | | $1,444,850 |
| 0106-02-21 | TDS-Metrocom | 7.0 | | $56,000 |
| 0106-11-98 | Western WI Telecom | 1.1 | | $11,000 |
| 0106-02-19 | Marcus Cable (Wausau) | 2.0 | | $16,000 |
| | CenturyTel of Northern WI | 0.75 | | $7,500 |
| | McLeod USA | < 0.5 | | $5,000 |
| | Spring Green CableComm | 2.7 | | $21,600 |

# EASEMENT AGREEMENT

BY AND BETWEEN

THE MASSACHUSETTS TURNPIKE AUTHORITY

AND

LEVEL 3 COMMUNICATIONS, LLC

JULY 20, 1999

C. Notwithstanding the result of the Appraisal Process, in no event shall Fixed Rent for any Extended Term be less than the Fixed Rent Floor. For purposes hereof, the term "Fair Market Rental Value" shall mean the fair market rental of the rights and easements herein granted to the Company pursuant to this Agreement as of the commencement of the applicable Extended Term, taking into account all relevant factors, including, without limitation, the length of the applicable Extended Term, the rights and easements of the Company in and to the Easement Area and the then prevailing market conditions.

D. Within thirty (30) days following the determination of Fixed Rent for the applicable Extended Term, the Authority and the Company agree to execute and deliver a certificate confirming the exact amount of such Fixed Rent payable for such Term which certificate shall be attached to, and become a part of, this Agreement, but the failure of either party to execute and deliver such confirmatory certificate shall not affect or impair the validity of such determination.

E. Notwithstanding anything to the contrary contained herein, Fixed Rent for each Year during each of the Extended Terms shall be increased pursuant to the formula set forth in Section 5A(e).

5. **Fixed Rent.**

A. The Company shall pay to the Authority, or as directed by the Authority, without offset, abatement, counterclaim, set off, deduction or demand of any kind, annual rent ("Fixed Rent") as follows:

**First Innerduct**

(a) Subject to an annual increase pursuant to paragraph (e) hereof, for the First Innerduct, the Company shall pay Fixed Rent to the Authority calculated as follows based upon a Full Route Easement Area of 132.8 miles: (i) $659,112.96 per annum, plus (ii) after the first 96 fibers installed on the cable in such Innerduct, $161,219.20 per annum for each set of up to and including 24 fibers on such cable in such Innerduct up to and including (when taken together with such 96 fibers) a total of 288 fibers thereon, plus (iii) $6,816.62 per annum for each fiber on such cable in excess of 288. The obligation of the Company to pay the Fixed Rent amount determined pursuant to clause (i) above shall be absolute and unconditional and not affected by any act, thing or occurrence whatsoever, including, without limitation, (x) any failure to complete the installation and construction of the Company's Communication System (whether at all or by a certain date) for any reason, (y) any decision by the Company to install 96 or less fibers on such cable in the First Innerduct or (z) whether any such fibers, inter alia, are functional, operational or "lit" (as hereinafter defined). The obligation of the Company to pay the Fixed Rent amount determined pursuant to clauses (ii) and (iii) above shall be absolute and

unconditional based solely upon the actual number of fibers located on such cable (such number being determined solely at the Company's discretion), regardless of whether any such fibers, inter alia, shall be functional, operational or "lit." The following illustrates three (3) examples of the determination of the Fixed Rent pursuant to clauses (i), (ii) and (iii) above (without taking into account the annual increases pursuant to paragraph (e) below; reference is hereby made to such paragraph for Fixed Rent examples which include such annual increases):

**First Example: First Innerduct**

In the event that the First Innerduct shall have 288 fibers on the cable therein, then the Fixed Rent shall be determined as follows:

Fixed Rent under clause (i) equals $659,112.96. Fixed Rent under clause (ii) is determined as follows: 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $161,219.20 equals $1,289,753.60. Fixed Rent under clause (iii) equals $0. The Fixed Rent therefore is $659,112.96 plus $1,289,753.60 plus $0, or **$1,948,866.56**.

**Second Example: First Innerduct**

In the event that the First Innerduct shall have 130 fibers on the cable therein, then the Fixed Rent shall be determined as follows:

Fixed Rent under clause (i) equals $659,112.96. Fixed Rent under clause (ii) is determined as follows: 130 minus 96 equals 34. Under clause (ii), 34 yields 2 sets of up to and including 24 fibers, and 2 multiplied by $161,219.20 equals $322,438.40. Fixed Rent under clause (iii) equals $0. The Fixed Rent therefore is $659,112.96 plus $322,438.40 plus $0, or **$981,551.36**.

**Third Example: First Innerduct**

In the event that the First Innerduct shall have 340 fibers on the cable therein, then the Fixed Rent shall be determined as follows:

Fixed Rent under clause (i) equals $659,112.96. Fixed Rent under clause (ii) is determined as follows: 288 is the maximum number for determining Fixed Rent under this clause. 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $161,219.20 equals

$1,289,753.60. Fixed Rent under clause (iii) is determined as follows: 340 minus 288 equals 52, and 52 multiplied by $6,816.62 equals $354,464.24 The Fixed Rent therefore is $659,112.96 plus $1,289,753.60 plus $354,464.24, or $2,303,330.80.

**Second through and including Sixth Innerducts**

(b) Subject to an annual increase pursuant to paragraph (e) hereof, for each of the Second through and including Sixth Innerducts, the Company shall pay Fixed Rent to the Authority for each such Innerduct as follows based upon a Full Route Easement Area of 132.8 miles: (i) $659,112.96 per annum for up to and including 96 "lit" fibers on such cable within each such Innerduct, plus (ii) after the first 96 "lit" fibers on such cable in each such Innerduct, $161,219.20 per annum for each set of up to and including 24 "lit" fibers on such cable in each such Innerduct up to and including (when combined with the fibers contemplated under clause (i) above) a total of 288 "lit" fibers, plus (iii) $6,816.63 per annum for each "lit" fiber on such cable in each such Innerduct in excess of 288. Fixed Rent for any of such Innerducts with "lit" fibers therein shall commence on the date that the fiber(s) therein become "lit" and shall continue until the end of the Term. Notwithstanding anything to the contrary contained in this Agreement, (1) upon the commencement of the third (3rd) Year of the Term, all fibers on the cable in the Second Innerduct shall be deemed to be "lit" (whether or not same actually shall be "lit"), and (2) upon the commencement of the sixth (6th) Year of the Term, all fibers on the cable in the Third Innerduct shall be deemed to be "lit" (whether or not same actually shall be "lit"). In the event that (a) there shall be no fibers installed in the Second Innerduct by the commencement of the Third Year or (b) there shall be no fibers installed in the Third Innerduct by the commencement of the Sixth Year, then, in either case, 96 fibers shall be deemed to have been installed in the applicable Innerduct by the commencement of the applicable Year, and pursuant to the foregoing, all such fibers shall be deemed to be "lit." Any fibers actually installed in such Innerducts after the commencement of the applicable Year in excess of the 96 fibers already deemed "lit" shall be deemed "lit" immediately upon their installation therein. Once "lit" (or deemed "lit"), the obligation of the Company to pay Fixed Rent on account of such fiber shall be absolute, unconditional and continue until the end of the Term, and shall not be affected by any act, thing or event whatsoever, including, without limitation, any malfunction, accident, or casualty in, to or otherwise affecting the Company's Communication System, or any voluntary or involuntary decision by the Company not to keep or maintain such fiber as "lit" at any time thereafter during the Term. For purposes hereof, the term "lit" shall mean such fiber is actively transmitting, or

capable of actively transmitting, data or other information at any speed or frequency (other than pursuant to an initial test of each fiber by the Company to determine its ability to function). The following illustrate examples of the determination of Fixed Rent pursuant to clauses (i), (ii) and (iii) above (without taking into account Fixed Rent increases pursuant to paragraph (e); reference is hereby made to such paragraph for Fixed Rent examples which include such annual increases):

**First Example: Second Through and Including Sixth Innerducts**

In the event that each of the Second, Third, Fourth, Fifth and Sixth Innerducts shall have 288 "lit" fibers on the cable therein, then the Fixed Rent for such Innerducts shall be determined as follows:

> Fixed Rent under clause (i) equals $659,112.96. Fixed Rent under clause (ii) is determined as follows: 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $161,219.20 equals $1,289,753.60. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $659,112.96 plus $1,289,753.60 plus $0, or $1,948,866.56. Fixed Rent for such Innerducts combined would be 5 multiplied by $1,948,866.56, or **$9,744,332.80**.

**Second Example: Second Through and Including Sixth Innerducts**

In the event that each of the Second, Third, Fourth, Fifth and Sixth Innerducts shall have 144 "lit" fibers on the cable therein, then the Fixed Rent for such Innerducts shall be determined as follows:

> Fixed Rent under clause (i) equals $659,112.96. Fixed Rent under clause (ii) is determined as follows: 144 minus 96 equals 48. Under clause (ii), 48 yields 2 sets of up to and including 24 fibers, and 2 multiplied by $161,219.20 equals $322,438.40. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $659,112.96 plus $322,438.40 plus $0, or $981,551.36. Fixed Rent for such Innerducts would be 5 multiplied by $981,551.36, or **$4,907,756.80**.
>
> [Given that all fibers in the Second Innerduct shall be deemed "lit" upon the commencement of the third (3rd) Year of the Term (whether or not same actually shall be "lit") and all fibers in the Third Innerduct shall be deemed "lit" upon the sixth (6th) Year of the Term (whether or not

same actually shall be "lit"), the foregoing example assumes a Year during the Term prior to the third (3rd) Year.]

Third Example: Second Through and Including Sixth Innerducts

In the event that each of the Second, Third, Fourth, Fifth and Sixth Innerducts shall have 340 "lit" fibers on the cable therein, then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $659,112.96. Fixed Rent under clause (ii) is determined as follows: 288 is the maximum number for determining Fixed Rent under this clause. 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $161,219.20 equals $1,289,753.60. Fixed Rent under clause (iii) is determined as follows: 340 minus 288 equals 52, and 52 multiplied by $6,816.62 equals $354,464.24. The Fixed Rent per Innerduct therefore is $659,112.96 plus $1,289,753.60 plus $354,464.24, or $2,303,330.80. Fixed Rent for such Innerducts would be 5 multiplied by $2,303,330.80, or $11,516,654.

Seventh through and including Twelfth Innerducts

(c) Subject to an annual increase pursuant to paragraph (e) hereof, for each of the Seventh through and including Twelfth Innerducts, the Company shall pay Fixed Rent to the Authority for each such Innerduct as follows based upon a Full Route Easement Area of 132.8 miles: (i) $161,272.32 per annum for up to and including 96 "lit" fibers on such cable within each such Innerduct, (ii) after the first 96 "lit" fibers on such cable in each such Innerduct, $35,059.20 per annum for each set up to and including 24 "lit" fibers on such cable in each such Innerduct up to and including (when combined with the fibers contemplated under clause (i) above) a total of 288 "lit" fibers, plus (iii) $6,816.62 per annum for each "lit" fiber on such cable and each such Innerduct in excess of 288. Once "lit", the obligation of the Company to pay Fixed Rent on account of such fiber shall be absolute, unconditional and continue until the end of the Term, and shall not be affected by any act, thing or event whatsoever, including, without limitation, any malfunction, accident or casualty in, to or otherwise affecting the Company's Communication System, or any voluntary or involuntary decision by the Company not to keep such fiber "lit" at any time thereafter during the Term. The following illustrate examples of the determination of Fixed Rent pursuant to clauses (i), (ii) and (iii) above (without taking into account Fixed Rent increases pursuant to paragraph

(e); reference is herein made to such paragraph for Fixed Rent examples which include such annual increases):

**First Example: Seventh Through and Including Twelfth Innerducts**

In the event that each of the Seventh, Eighth, Ninth and Tenth Innerducts shall have 288 "lit" fibers on the cable therein (with each of the Eleventh and Twelfth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $161,272.32. Fixed Rent under clause (ii) is determined as follows: 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $35,059.20 equals $280,473.60. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $161,272.32 plus $280,473.60 plus $0, or $441,745.92. Fixed Rent for such Innerducts combined would be 4 multiplied by $441,745.92, or $1,766,983.68.

**Second Example: Seventh Through and Including Twelfth Innerducts**

In the event that each of the Seventh, Eighth, Ninth and Tenth Innerducts shall have 130 "lit" fibers on the cable therein (with each of the Eleventh and Twelfth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $161,272.32. Fixed Rent under clause (ii) is determined as follows: 130 minus 96 equals 34. Under clause (ii), 34 yields 2 sets of up to and including 24 fibers, and 2 multiplied by $35,059.20 equals $70,118.40. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $161,272.32 plus $70,118.40 plus $0, or $231,390.72. Fixed Rent for such Innerducts would be 4 multiplied by $231,390.72, or $925,562.88.

**Third Example: Seventh Through and Including Twelfth Innerducts**

In the event that each of the Seventh, Eighth, Ninth and Tenth Innerducts shall have 340 "lit" fibers on the cable therein (with each of the Eleventh and Twelfth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $161,272.32. Fixed Rent under clause (ii) is determined as follows: 288 is the maximum number for determining Fixed Rent under this clause. 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $35,059.20 equals $280,473.60. Fixed Rent under clause (iii) is determined as follows: 340 minus 288 equals 52, and 52 multiplied by $6,816.62 equals $354,464.24. The Fixed Rent per Innerduct therefore is $161,272.32 plus $280,473.60 plus $354,464.24, or $796,210.16. Fixed Rent for such Innerducts would be 4 multiplied by $796,210.16, or $3,184,840.64.

**Thirteenth through and including Twentieth Innerducts**

(d) Subject to an annual increase pursuant to paragraph (e) hereof, for each of the Thirteenth through and including Twentieth Innerducts, the Company shall pay Fixed Rent to the Authority for each such Innerduct as follows based upon a Local Loop Easement Area of [9.2] miles: (i) $11,172.48 per annum for up to and including 96 "lit" fibers on such cable within each such Innerduct, (ii) after the first 96 "lit" fibers on such cable in each such Innerduct, $2,428.80 per annum for each set up to and including twenty-four "lit" fibers on such cable in each such Innerduct up to and including (when combined with the fibers contemplated under clause (i) above) a total of 288 "lit" fibers, plus (iii) $472.24 per annum for each "lit" fiber on such cable and each such Innerduct in excess of 288. The foregoing notwithstanding, no Fixed Rent shall be owed by the Company on account of the Thirteenth and Fourteenth Innerducts for up to and including 288 "lit" fibers on the cable in each such Innerduct. Once "lit", the obligation of the Company to pay Fixed Rent on account of such fiber shall be absolute, unconditional and continue until the end of the Term, and shall not be affected by any act, thing or event whatsoever, including, without limitation, any malfunction, accident or casualty in, to or otherwise affecting the Company's Communication System, or any voluntary or involuntary decision by the Company not to keep such fiber "lit' at any

time thereafter during the Term. The following illustrate examples of the determination of Fixed Rent pursuant to clauses (i), (ii) and (iii) above (without taking into account Fixed Rent increases pursuant to paragraph (e); reference is herein made to such paragraph for Fixed Rent examples which include such annual increases):

**First Example: Thirteenth Through and Including Twentieth Innerducts**

In the event that each of the Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts shall have 288 "lit" fibers on the cable therein (with each of the Nineteenth and Twentieth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $11,172.48. Fixed Rent under clause (ii) is determined as follows: 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $2,428.80 equals $19,430.40. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $11,172.48 plus $19,430.40 plus $0, or $30,602.88. However, no Fixed Rent is owed under clauses (i) and (ii) on account of the Thirteenth and Fourteenth Innerducts because the number of "lit" fibers therein does not exceed 288. Therefore, Fixed Rent for such Innerducts would be 4 (i.e., representing the Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts) multiplied by $30,602.88, or $122,411.52.

**Second Example: Thirteenth Through and Including Twentieth Innerducts**

In the event that each of the Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts shall have 130 "lit" fibers on the cable therein (with each of the Nineteenth and Twentieth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $11,172.48. Fixed Rent under clause (ii) is determined as follows: 130 minus 96 equals 34. Under clause (ii), 34 yields 2 sets of up to and including 24 fibers, and 2 multiplied by $2,428.80 equals $4,857.60. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $11,172.48 plus

$4,857.60 plus $0, or $16,030.08. However, no Fixed Rent is owed under clauses (i) and (ii) on account of the Thirteenth and Fourteenth Innerducts because the number of "lit" fibers therein does not exceed 288. Therefore, Fixed Rent for such Innerducts would be 4 (i.e., representing the Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts) multiplied by $16,030.08, or **$64,120.32**.

**Third Example: Thirteenth Through and Including Twentieth Innerducts**

In the event that each of the Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts shall have 340 "lit" fibers on the cable therein (with each of the Nineteenth and Twentieth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $11,172.48. Fixed Rent under clause (ii) is determined as follows: 288 is the maximum number for determining Fixed Rent under this clause. 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $2,428.80 equals $19,430.40. No Fixed Rent is owed under clauses (i) and (ii) on account of the Thirteenth and Fourteenth Innerducts. Therefore, Fixed Rent under clauses (i) and (ii) equals $11,172.48 plus $19,430.40, or $30,602.88, and $30,602.88 multiplied by 4 (i.e., representing the Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts) equals **$122,411.52**. Fixed Rent under clause (iii) per Innerduct is determined as follows: 340 minus 288 equals 52, and 52 multiplied by $472.24 equals $24,556.48. The Fixed Rent under clause (iii) for such Innerducts is $24,556.48 multiplied by 6 (i.e., representing the Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts), or **$147,338.88**. Therefore, Fixed Rent under clauses (i), (ii) and (iii) would be $122,411.52 plus $147,338.88, or **$269,750.40**.

(e) In addition to the Fixed Rent determined under paragraphs (a)-(d) of this Section 5A, for each year during the Term (including, without limitation, the Extended Terms) other than the First Year, Fixed Rent as otherwise determined in accordance with this Section 5A shall be increased per annum by multiplying such Fixed Rent by the CPI Factor, but in no event less than such annual Fixed Rent multiplied by 1.025 (the "Increase Floor") nor greater than such annual Fixed Rent multiplied by 1.05 (the

"Increase Factor"). In applying the provisions of the preceding sentence with respect to the Second through and including the Twentieth Innerducts, the parties expressly acknowledge and agree that the Authority shall not lose the benefit of any increase in Fixed Rent under such sentence as a result of no Fixed Rent being due and payable for all or any of the Second through and including Twentieth Innerducts for any prior Year; it being acknowledged by the Company that any calculation of Fixed Rent for any such Innerduct for any Year (other than the First Year) shall be computed taking into account all Increase Factors for all prior Years. Within thirty (30) days following the determination of the Increase Factor and such Fixed Rent for each such Year, the Authority and the Company agree to execute and deliver a certificate confirming the Increase Factor and the exact amount of such Fixed Rent payable for such year which certificate shall be attached to, and become a part of, this Agreement, but the failure of either party to execute and deliver such confirmatory certificate shall not affect or impair the validity of such determination. Any delay in calculating the Increase Factor shall not waive or release the Company from paying any increase in Fixed Rent on account thereof. In the event of any such delay, the Company shall pay Fixed Rent for the applicable year using, for purposes of this paragraph (e), the Increase Floor, with any readjustment and payment from the Company to occur following the determination of the Increase Factor. The following set forth multiple examples of the calculation of Fixed Rent in accordance with this paragraph:

I. **First Set of Examples of Fixed Rent Increase Formula:**

Each is an example of calculating the Fixed Rent for the one (1) year period commencing on June 1, 2000 through and including May 31, 2001 (i.e., the Second Year). For this Year, the Measurement Period is March 1, 1999 through and including February 29, 2000.

A. Assume CPI for February, 2000 (CPI 1982-84 equals 100) was 140 and CPI for February, 1999 (CPI 1982-84 equals 100) was 136.8. 140 divided by 136.8 equals 1.023. Because 1.023 is less than 1.025, the Increase Factor used to calculate Fixed Rent for this year would be **1.025**:

In the event that the First Innerduct shall have 288 fibers on the cable therein, Fixed Rent for such Innerduct would be $1,948,866.56 as determined in the First Example: First Innerduct under Section 5A(a). $1,948,866.56 multiplied by 1.025 equals $1,997,588.22 which would be the Fixed Rent for the First Innerduct for the one (1) year period

commencing June 1, 2000 through and including May 31, 2001.

In the event that each of the Second, Third, Fourth, Fifth and Sixth Innerducts shall have 288 "lit" fibers on the cable therein, Fixed Rent for such Innerducts would be $9,744,332.80 as determined in the First Example: Second through and including Sixth Innerducts under Section 5A(b). $9,744,332.80 multiplied by 1.025 equals **$9,987,941.12** which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that each of the Seventh, Eighth, Ninth and Tenth Innerducts shall have 288 "lit" fibers on the cable therein (with each of the Eleventh and Twelfth Innerducts having no "lit" fibers therein), Fixed Rent for such Innerducts would be $1,766,983.68 as determined in the First Example: Seventh through and including Thirteenth Innerducts under Section 5A(c). $1,766,983.68 multiplied by 1.025 equals **$1,811,158.27** which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that each of the Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts shall have 288 "lit" fibers on the cable therein (with each of the Nineteenth and Twentieth Innerducts having no "lit" fibers therein), Fixed Rent for such Innerducts would be $122,411.52 as determined in the First Example: Thirteenth through and including Twentieth Innerducts under Section 5A(d). $122,411.52 multiplied by 1.025 equals **$125,471.81** which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period commencing June 1, 2000 through and including May 31, 2001 would be $1,997,588.22 plus $9,987,941.12 plus $1,811,158.27 plus $125,471.81, or **$13,922,159.42**.

B. Assume CPI for February, 2000 (CPI 1982-84 equals 100) was 142 and CPI for February, 1999 (CPI 1982-84 equals 100) was 136.8. 142 divided by 136.8 equals 1.038. Because 1.038 is greater than 1.025 but less than 1.05, the Increase Factor used to calculate Fixed Rent for this year would be 1.038:

In the event that the First Innerduct shall have 130 fibers on the cable therein, Fixed Rent for the First Innerduct would be $981,551.36 as determined in the Second Example: First Innerduct under Section 5A(a). $981,551.36 multiplied by 1.038 equals $1,018,850.31 which would be the Fixed Rent for the First Innerduct for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that each of the Second, Third, Fourth, Fifth and Sixth Innerducts shall have 144 "lit" fibers on the cable therein, Fixed Rent for such Innerducts would be $4,907,756.80 as determined in the Second Example: Second through and including Sixth Innerducts under Section 5A(b). $4,907,756.80 multiplied by 1.038 equals $5,094,251.56 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that each of the Seventh, Eighth, Ninth and Tenth Innerducts shall have 130 "lit" fibers on the cable therein (with each of the Eleventh and Twelfth Innerducts having no "lit" fibers therein), Fixed Rent for such Innerducts would be $925,562.88 as determined in accordance with the Second Example: Seventh through and including Twelfth Innerducts under Section 5A(c). $925,562.88 multiplied by 1.038 equals $960,734.27 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that each of the Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth and Eighteenth Innerducts shall have 130 "lit" fibers on the cable therein (with each of the Nineteenth and Twentieth Innerducts having no "lit" fibers on the cable therein), Fixed Rent for such Innerducts would be $64,120.32 as determined in accordance with the

Second Example: Thirteenth through and including Twentieth Innerducts under Section 5A(d). $64,120.32 multiplied by 1.038 equals $66,556.89 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period commencing June 1, 2000 through and including May 31, 2001 would be $1,018,850.31 plus $5,094,251.56 plus $960,734.27 plus $66,556.89, or $7,140,393.03.

C. Assume CPI for February, 2000 (CPI 1982-84 equals 100) was 150 and CPI for February, 1999 (CPI 1982-84 equals 100) was 136.8. 150 divided by 136.8 equals 1.096. Because 1.096 is greater than 1.05, the Increase Factor used to calculate annual Fixed Rent for this year would be 1.05:

In the event that the First Innerduct shall have 340 fibers on the cable therein, Fixed Rent for such Innerduct would be $2,303,330.80 as determined in the Third Example: First Innerduct under Section 5A(a). $2,303,330.80 multiplied by 1.05 would be $2,418,497.34 which would be the Fixed Rent for such Innerduct for the period commencing June 1, 2000 and continuing through and including May 31, 2001.

In the event that each of the Second, Third, Fourth, Fifth and Sixth Innerducts shall have 340 "lit" fibers on the cable therein, Fixed Rent for such Innerducts would be $11,516,654 as determined in the Third Example: Second through and including Sixth Innerducts under Section 5A(b). $11,516,654 multiplied by 1.05 would be $12,092,486.70 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 and continuing through and including May 31, 2001.

In the event that each of the Seventh, Eighth, Ninth and Tenth Innerducts shall have 340 "lit" fibers on the cable therein (with each of the Eleventh and Twelfth Innerducts having no "lit" fibers on the cable therein), Fixed Rent for such Innerducts would be $3,184,840.64 as determined in the Third Example: Seventh through and including Twelfth Innerducts under Section 5A(c). $3,184,840.64 multiplied

and Twentieth Innerducts) and (e) the Increase Factor for the Year commencing June 1, 2000 through and including May 31, 2001 was 1.05.

Assume CPI for February, 2001 (CPI 1982-84 equals 100) was 140 and CPI for February, 2000 (CPI 1982-84 equals 100) was 136.8. 140 divided by 136.8 equals 1.023. Because 1.023 is less than 1.025, the Increase Factor used to calculate Fixed Rent for this Year would be 1.025:

As determined in the First Example: First Innerduct in Section 5A(a), Fixed Rent for the First Year on account of the First Innerduct would be $1,948,866.56. For the Year commencing June 1, 2000 through and including May 31, 2001, we have assumed, as set forth above, an Increase Factor of 1.05. Thus, $1,948,866.56 multiplied by 1.05 equals $2,046,309.89 which would have been the Fixed Rent for the First Innerduct for the one (1) year period commencing June 1, 2000 through and including May 31, 2001. For the next Year (i.e., the Year commencing June 1, 2001 and continuing through and including May 31, 2002), the Increase Factor, as determined above, is 1.025. Thus, $2,046,309.89 multiplied by 1.025 equals $2,097,467.64 and this would be the Fixed Rent payable on account of the First Innerduct for the one (1) year period commencing June 1, 2001 and continuing through and including May 31, 2002.

As determined in the First Example: Second through and including Sixth Innerducts, Fixed Rent for such Innerducts would be $9,744,332.80 as adjusted as follows. First, even though no Fixed Rent was owed by the Company on account of such Innerducts prior to June 1, 2001, such figure would be multiplied by 1.05, the Increase Factor applicable to the Year commencing June 1, 2000 through and including May 31, 2001, which equals $10,231,549.44. For this Year (i.e., the Year commencing June 1, 2001 and continuing through and including May 31, 2002), the Increase Factor, as determined above, is 1.025. Thus, $10,231,549.44 multiplied by 1.025 equals $10,487,338.17 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2001 through and including May 31, 2002.

As determined in the First Example: Seventh through and including Twelfth Innerducts, Fixed Rent for such Innerducts would be $1,766,983.68 adjusted as follows. First, even though no Fixed Rent was owed by the Company on account of such Innerducts prior to June 1, 2001, such figure would be multiplied by 1.05, the Increase Factor applicable to the Year commencing June 1, 2000 through and including May 31, 2001, which equals $1,855,332.86. For this Year (i.e., the Year commencing June 1, 2001 and continuing through and including May 31, 2002), the Increase Factor, as determined above, is 1.025. Thus, $1,855,332.86 multiplied by 1.025 equals $1,901,716.18 which would be the Fixed Rent for the one (1) year period commencing June 1, 2001 through and including May 31, 2002.

As determined in the First Example: Thirteenth through and including Twentieth Innerducts, Fixed Rent for such Innerducts would be $122,411.52 adjusted as follows. First, even though no Fixed Rent was owed by the Company on account of such Innerducts prior to June 1, 2001, such figure would be multiplied by 1.05, the Increase Factor applicable to the Year commencing June 1, 2000 through and including May 31, 2001, which equals $128,532.10. For this Year (i.e., the Year commencing June 1, 2001 and continuing through and including May 31, 2002), the Increase Factor, as determined above, is 1.025. Thus, $128,532.10 multiplied by 1.025 equals $131,745.40 which would be the Fixed Rent for the one (1) year period June 1, 2001 through and including May 31, 2002.

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period commencing June 1, 2001 through and including May 31, 2002 would be $2,097,467.64 plus $10,487,338.17 plus $1,901,716.18 plus $131,745.40, or $14,618,267.39.

B. The Fixed Rent shall be payable annually, in advance, on or before the first day of each Year during the Term to such address as the Authority shall from time to time designate by notice (without any obligation or requirement on the part of the Authority to send the Company an invoice for Fixed Rent, provided, however, that if the Authority elects in its sole discretion to send any such invoice to the Company, same shall not (i) require or obligate the Authority to send the Company any such invoice in subsequent years or (ii) change or extend the foregoing due date for the payment of Fixed Rent) in lawful money of the United States. Until

notice of some other designation is given by the Authority, Fixed Rent shall be paid by remittance to the Authority. All payments of Fixed Rent shall be made (a) by the mailing or delivering to the Authority of the Company's check in the amount of such payment drawn on a commercial bank with offices in the continental United States, and shall be deemed timely made if received by the Authority on or before the due date thereof, provided that if such check is not paid and honored upon presentation thereof, duly endorsed, such check shall not constitute payment or (b) by wire transfer of immediately available Federal funds on or before the due date thereof in accordance with wiring instructions provided to the Company by the Authority.

C. Notwithstanding anything to the contrary contained in Section B, (1) the Company shall pay $329,556.48 to the Authority concurrently with the execution and delivery of this Agreement which shall be applied against the Fixed Rent owed for the First Year, with the balance (the "First Year Fixed Rent Balance") of such Fixed Rent for the First Year being due and payable to the Authority upon the earlier to occur of (i) completion of the Company's Communication System or (ii) the end of the First Year, and (2) if at any time during any Year during the Term, any fibers in the Second through and including Twentieth Innerducts shall become "lit," the Company shall so notify the Authority and if Fixed Rent attributable therefor has not been paid by the Company for such Year, the Company shall pay same simultaneously therewith, prorated from the date such fiber(s) became "lit" through and including the end of such Year.

D. Concurrently with the payment to the Authority of the First Year Fixed Rent Balance, the Company shall provide the Authority with a written certification, in form and substance satisfactory to the Authority, containing the exact number of fibers initially installed on the cable in the First Innerduct and (if available) the other Innerducts. Notwithstanding anything to the contrary contained in this Agreement, the Authority and the Company agree that the number of fibers on the cables in the Innerducts may be increased during the Term beyond the number initially installed in such Innerducts. Fixed Rent payable with respect to any additional fibers installed in the First Innerduct shall be payable commencing on the date of installation thereof prorated through the end of the Year in which such installation occurs. Fixed Rent payable with respect to any additional fibers installed in the Second through and including Twelfth Innerducts shall be payable commencing on the date such additional fibers shall become "lit" (subject to the provisions of Section 5(A)(b) with respect to the Second and Third Innerducts in which such additional fibers may be deemed "lit" upon the installation thereof). No decrease in the number of fibers in any Innerduct shall reduce the Fixed Rent owed to the Authority hereunder. With each subsequent annual Fixed Rent payment, the Company shall provide the Authority with a written certification, in form and substance satisfactory to the Authority, containing the exact number of Innerducts with "lit" fiber and the number of "lit" fiber in each such Innerduct as of the date of such certification and for the immediately preceding Year. At any time or from time to time during the Term, the Company agrees to provide to the Authority such other and further certifications and information respecting the Innerducts as the Authority may reasonably request. In the event that any certification from the Company shall understate the amount of "lit" fibers in any of the Second through and including Twentieth Innerducts, then the Company shall pay the amount the Fixed Rent attributable therefor to such understatement

with accrued interest thereon at the Default Rate from the date that such Fixed Rent was due, together with a disincentive payment to the Authority in an amount equal to 125% of the foregoing sum, following demand therefor.

E. The Company agrees that in the event that any fibers shall be "lit" in any of the Third through and including Twelfth Innerducts, then notwithstanding anything to the contrary contained herein, the Company thereafter shall pay Fixed Rent for each of the preceding Innerducts (other than the First Innerduct) on the basis of the greater of (i) the number of fibers "lit" (or deemed "lit") in each such Innerduct or (ii) 96 "lit" fibers.

F. In addition, upon the earlier to occur of (i) three (3) days following the Authority's approval of the Company's Plans for the initial construction and installment of the Company's Communication System or (ii) the last day of the First Year, the Company shall pay $2,000,000 to the Authority (the "Lump Sum Payment"). The Lump Sum Payment shall be fully earned by the Authority upon the occurrence of any of the events described in clauses (i) and (ii) above, and is a non-refundable payment to the Authority in addition to, and not a credit against, the Fixed Rent and the other obligations of the Company hereunder.

G. In addition, concurrently with the execution and delivery of this Agreement and in satisfaction of the Company's obligation to the Authority under Section B3(a) of the Letter of Intent, the Company shall pay $75,000 to the Authority to reimburse the Authority for certain reasonable out of pocket costs incurred by the Authority in connection with the negotiation, documentation and implementation of the Letter of Intent and this Agreement.

6. Compliance with Legal Requirements.

From and after the Commencement Date, the Company shall comply promptly with any and all present and future, laws, rules, orders, ordinances, regulations, statutes, requirements, codes and executive orders irrespective of the nature of the work required to be done, extraordinary as well as ordinary, foreseen or unforseen, of any and all federal, state, city or other governmental, public or quasi-public authorities now existing or hereafter created, and of any and all of their departments and bureaus, including, without limitation, all applicable Environmental Laws, and of any Board of Fire Underwriters or other body exercising similar functions (collectively, "Legal Requirements") which in any way affect or relate to the Company, the Easement Area and/or the Company's Communication System, including, without limitation, (i) the use, nonuse, construction, maintenance, use or occupation of the Easement Area and/or the Company's Communication System and (ii) all laws of the Commonwealth of Massachusetts relating to taxes. In furtherance of the foregoing, it shall be the sole responsibility of the Company to obtain, at its sole cost and expense, any and all applicable federal, state and local permits, approvals, licenses and reviews, including, without limitation, the review and approval of all applicable local zoning and other authorities, in connection with the use, nonuse, construction, maintenance, use and occupation of the Easement Area and/or the Company's Communication System.

COPY

# EASEMENT AGREEMENT

BY AND BETWEEN

THE MASSACHUSETTS TURNPIKE AUTHORITY

AND

WILLIAMS COMMUNICATIONS, INC. D/B/A VYVX

MAY 25, 1999

notice to the other of its election so to do, whereupon this Agreement shall terminate upon the expiration of the then current Term.

G. Notwithstanding anything to the contrary contained herein, no MAI certified appraisers utilized by the Authority or the Company in the Appraisal Process shall be an employee of the Authority or the Company.

5. Fixed Rent.

A. The Company shall pay to the Authority, or as directed by the Authority, without offset, abatement, counterclaim, set off, deduction or demand of any kind (except to the extent otherwise specifically provided herein), annual rent ("Fixed Rent") as follows:

(a) Subject to an annual increase pursuant to paragraph (c) hereof, for the First Innerduct, the Company shall pay Fixed Rent to the Authority calculated as follows based upon an assumed 133.6 mile Easement Area: (i) $723,978.40 per annum, for up to the first 96 fibers installed on the cable in such Innerduct, plus (ii) after the first 96 fibers installed on the cable in such Innerduct, $164,595.20 per annum for each set of up to and including 24 fibers on such cable in such Innerduct (subject to Proration) up to and including (when taken together with such 96 fibers) a total of 288 fibers thereon, plus (iii) $6,857.69 per annum for each fiber on such cable in excess of 288 fibers. For purposes hereof, the term "Proration" shall mean and apply if there shall be more than 120 but less than 288 fibers located within any Innerduct, and the total number of such fibers shall not be evenly divisible by 24, then Fixed Rent under clause (ii) for fibers 121 through 288 shall be payable on a per 24 set basis for each set of 24 fibers between 121 and 288 fibers, and on a per fiber basis for each fiber over and above the last set of 24 fibers. For example, in the event that the total number of fibers installed in an Innerduct is 186, then Fixed Rent under clause (ii) above for fibers 121 through and including 168 shall be payable on the basis of 2 sets of 24 fibers (i.e., covering fibers 121 through 168), and on a per fiber basis for the remaining 18 fibers on such cable. Proration shall not apply if more than 96 but less than 120 fibers are located within any Innerduct; in such circumstance, Fixed Rent under clause (ii) above for the fibers above 96 but less than 120 shall be payable on the basis of 1 full set of 24 fibers. The obligation of the Company to pay the Fixed Rent amount determined pursuant to clause (i) above shall be absolute and unconditional and not affected by any act, thing or occurrence whatsoever, including, without limitation, (x) any failure to complete the installation and construction of the Company's Communication System (whether at all or by a certain date) for any reason, (y) any decision by the Company to install 96 or less fibers on such cable in the First Innerduct or (z) whether any such fibers, inter alia, are functional, operational or "lit" (as hereinafter defined). The obligation of the

Company to pay the Fixed Rent amount determined pursuant to clauses (ii) and (iii) above shall be absolute and unconditional based solely upon the actual number of fibers located on such cable (such number being determined solely at the Company's discretion), regardless of whether any such fibers, inter alia, shall be functional, operational or "lit." The following illustrates three (3) examples of the determination of the Fixed Rent pursuant to clauses (i), (ii) and (iii) above (without taking into account the annual increases pursuant to paragraph (c) below; reference is hereby made to such paragraph for Fixed Rent examples which include such annual increases):

**First Example: First Innerduct**

In the event that the First Innerduct shall have 288 fibers on the cable therein, then the Fixed Rent shall be determined as follows:

Fixed Rent under clause (i) equals $723,978.40. Fixed Rent under clause (ii) is determined as follows: 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $164,595.20 equals $1,316,761.60. Fixed Rent under clause (iii) equals $0. The Fixed Rent therefore is $723,978.40 plus $1,316,761.60 plus $0, or **$2,040,740**.

**Second Example: First Innerduct**

In the event that the First Innerduct shall have 144 fibers on the cable therein, then the Fixed Rent shall be determined as follows:

Fixed Rent under clause (i) equals $723,978.40. Fixed Rent under clause (ii) is determined as follows: 144 minus 96 equals 48. Under clause (ii), 48 yields 2 sets of up to and including 24 fibers, and 2 multiplied by $164,595.20 equals $329,190.40. Fixed Rent under clause (iii) equals $0. The Fixed Rent therefore is $723,978.40 plus $329,190.40 plus $0, or **$1,053,168.80**.

**Third Example: First Innerduct**

In the event that the First Innerduct shall have 340 fibers on the cable therein, then the Fixed Rent shall be determined as follows:

Fixed Rent under clause (i) equals $723,978.40. Fixed Rent under clause (ii) is determined as follows: 288 is the maximum number for determining Fixed Rent under this clause. 288 minus 96 equals 192. 192 divided by 24 equals

8, and 8 multiplied by $164,595.20 equals $1,316,761.60. Fixed Rent under clause (iii) is determined as follows: 340 minus 288 equals 52, and 52 multiplied by $6,857.69 equals $356,599.88. The Fixed Rent therefore is $723,978.40 plus $1,316,761.60 plus $356,599.88, or $2,397,339.88.

(b) Subject to an annual increase pursuant to paragraph (c) hereof, for each of the Second through and including Sixth Innerducts, the Company shall pay Fixed Rent to the Authority for each such Innerduct as follows based upon an assumed 133.6 mile Easement Area: (i) $723,978.40 per annum for up to and including 96 "lit" fibers on such cable within each such Innerduct, plus (ii) $164,595.20 per annum for each set of up to and including 24 "lit" fibers on such cable in each such Innerduct (subject to Proration) up to and including (when combined with the fibers contemplated under clause (i) above) a total of 288 "lit" fibers, plus (iii) $6,857.69 per annum for each "lit" fiber on such cable in each such Innerduct in excess of 288 fibers. Except as provided below, Fixed Rent for any of such Innerducts with "lit" fibers therein shall commence on the date that any such fiber or group of fibers, as the case may be, is "lit" until the later of: (i) the fifth (5th) year anniversary of such commencement date or (ii) the date at which time such fiber is "unlit," but in no event beyond the Term. Should the fiber installed in any of the Second through and including Sixth Innerducts be "lit" in substitution of a previously "lit" fiber in a different Innerduct, and the previously "lit" fiber shall be simultaneously "unlit" and use of such fiber discontinued, then Fixed Rent only shall be payable for the substituted fiber and the Company shall not have any further Fixed Rent obligation for the discontinued fiber (until same shall become "lit" again). For purposes hereof, the term "lit" shall mean such fiber is actively transmitting data or other information at any speed or frequency (other than pursuant to an initial test of each fiber by the Company to determine its ability to function), and the term "unlit" shall mean any fiber that is not "lit". A fiber which is "lit" shall be and remain "lit" and not become "unlit" as a result of any malfunction, accident or casualty in, to or otherwise affecting the Company's Communication System. The following illustrate examples of the determination of Fixed Rent pursuant to clauses (i), (ii) and (iii) above (without taking into account Fixed Rent increases pursuant to paragraph (c); reference is hereby made to such paragraph for Fixed Rent examples which include such annual increases):

First Example: Second Through and Including Sixth Innerducts

In the event that each of the Second, Third and Fourth Innerducts shall have 288 "lit" fibers on the cable therein (with the Fifth and

Sixth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $723,978.40. Fixed Rent under clause (ii) is determined as follows: 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $164,595.20 equals $1,316,761.60. Fixed Rent under clause (iii) equals $0. The Fixed Rent per Innerduct therefore is $723,978.40 plus $1,316,761.60 plus $0, or $2,040,740. Fixed Rent for such Innerducts combined would be 3 multiplied by $2,040,740, or **$6,122,220**.

**Second Example: Second Through and Including Sixth Innerducts**

In the event that each of the Second, Third and Fourth Innerducts shall have 144 "lit" fibers on the cable therein (with the Fifth and Sixth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $723,978.40. Fixed Rent under clause (ii) is determined as follows: 144 minus 96 equals 48. Under clause (ii), 48 yields 2 sets of up to and including 24 fibers, and 2 multiplied by $164,595.20 equals $329,190.40. Fixed Rent under clause (iii) equals$0. The Fixed Rent per Innerduct therefore is $723,978.40 plus $329,190.40 plus $0, or $1,053,168.80. Fixed Rent for such Innerducts would be 3 multiplied by $1,053,168.80, or **$3,159,506.40**.

**Third Example: Second Through and Including Sixth Innerducts**

In the event that each of the Second, Third and Fourth Innerducts shall have 340 "lit" fibers on the cable therein (with the Fifth and Sixth Innerducts having no "lit" fibers therein), then the Fixed Rent for such Innerducts shall be determined as follows:

Fixed Rent under clause (i) equals $723,978.40. Fixed Rent under clause (ii) is determined as follows: 288 is the maximum number for determining Fixed Rent under this clause. 288 minus 96 equals 192. 192 divided by 24 equals 8, and 8 multiplied by $164,595.20 equals $1,316,761.60. Fixed Rent under clause (iii) is determined as follows: 340 minus 288 equals 52, and 52 multiplied by $6,857.69 equals $356,599.88. The Fixed Rent per Innerduct therefore is

$723,978.40 plus $1,316,761.60 plus $356,599.88, or $2,397,339.88. Fixed Rent for such (3) Innerducts would be 3 multiplied by $2,397,339.88, or $7,192,019.64.

(c) In addition to the Fixed Rent determined under paragraphs (a) and (b) of this Section 5A, for each year during the Term (including, without limitation, the Extended Terms) other than the First Year, Fixed Rent as otherwise determined in accordance with this Section 5A shall be increased per annum by multiplying such Fixed Rent by the CPI Factor, but in no event less than such annual Fixed Rent multiplied by 1.025 (the "Floor") nor greater than such annual Fixed Rent multiplied by 1.05 (the "Increase Factor"). In applying the provisions of the preceding sentence with respect to the Second through and including the Sixth Innerducts, the parties expressly acknowledge and agree that the Authority shall not lose the benefit of any increase in Fixed Rent under such sentence as a result of no Fixed Rent being due and payable for all or any of the Second through and including Sixth Innerducts for any prior Year, it being acknowledged by the Company that any calculation of Fixed Rent for any such Innerduct for any Year (other than the First Year) shall be computed taking into account all Increase Factors for all prior Years. Within thirty (30) days following the determination of the Increase Factor and such Fixed Rent for each such Year, the Authority and the Company agree to execute and deliver a certificate confirming the Increase Factor and the exact amount of such Fixed Rent payable for such year which certificate shall be attached to, and become a part of, this Agreement, but the failure of either party to execute and deliver such confirmatory certificate shall not affect or impair the validity of such determination. Any delay in calculating the Increase Factor shall not waive or release the Company from paying any increase in Fixed Rent on account thereof. In the event of any such delay, the Company shall pay Fixed Rent for the applicable year using, for purposes of this paragraph (c), the Floor, with any readjustment and payment from the Company to occur following the determination of the Increase Factor. The following set forth multiple examples of the calculation of Fixed Rent in accordance with this paragraph:

I. First Set of Examples of Fixed Rent Increase Formula:

Each is an example of calculating the Fixed Rent for the one (1) year period commencing on June 1, 2000 through and including May 31, 2001. For this Year, the Measurement Period is March 1, 1999 through and including February 29, 2000.

A. Assume CPI for February, 2000 (CPI 1982-84 equals 100) was 140 and CPI for February, 1999 (CPI 1982-84 equals 100) was 136.8. 140 divided by 136.8 equals 1.023. Because

1.023 is less than 1.025, the Increase Factor used to calculate Fixed Rent for this year would be **1.025**:

In the event that the First Innerduct shall have 288 fibers on the cable therein, Fixed Rent for such Innerduct would be $2,040,740 as determined in the First Example: First Innerduct under Section 5A(a). $2,040,740 multiplied by 1.025 equals **$2.091.758.50** which would be the Fixed Rent for the First Innerduct for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that the Second Third and Fourth Innerducts shall have 288 "lit" fibers on the cable therein (with the Fifth and Sixth Innerducts having no "lit" fibers therein), Fixed Rent for such Innerducts would be $6,122,220 as determined in the First Example: Second through and including Sixth Innerducts under Section 5A(b). $6,122,220 multiplied by 1.025 equals **$6,275,275.50** which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period commencing June 1, 2000 through and including May 31, 2001 would be **$8,367,034**.

B. Assume CPI for February, 2000 (CPI 1982-84 equals 100) was 142 and CPI for February, 1999 (CPI 1982-84 equals 100) was 136.8. 142 divided by 136.8 equals 1.038. Because 1.038 is greater than 1.025 but less than 1.05, the Increase Factor used to calculate Fixed Rent for this year would be **1.038**:

In the event that the First Innerduct shall have 130 fibers on the cable therein, Fixed Rent for the First Innerduct would be $1,053,168.80 as determined in the Second Example: First Innerduct under Section 5A(a). $1,053,168.80 multiplied by 1.038 equals **$1,093,189.21** which would be the Fixed Rent for the First Innerduct for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

In the event that the Second, Third and Fourth Innerducts shall have 144 "lit" fibers on the cable therein (with the Fifth and Sixth Innerducts having no "lit" fibers therein), Fixed Rent for such Innerducts would be $3,159,506.40 as determined in the Second Example: Second through and including Sixth Innerducts under Section 5A(b). $3,159,506.40 multiplied by 1.038 equals $3,279,567.64 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 through and including May 31, 2001.

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period commencing June 1, 2000 through and including May 31, 2001 would be $4,372,756.85.

C. Assume CPI for February, 2000 (CPI 1982-84 equals 100) was 150 and CPI for February, 1999 (CPI 1982-84 equals 100) was 136.8. 150 divided by 136.8 equals 1.096. Because 1.096 is greater than 1.05, the Increase Factor used to calculate annual Fixed Rent for this year would be 1.05:

In the event that the First Innerduct shall have 340 fibers on the cable therein, Fixed Rent for such Innerduct would be $2,397,339.88 as determined in the Third Example: First Innerduct under Section 5A(a). $2,397,339.88 multiplied by 1.05 would be $2,517,206.87 which would be the Fixed Rent for such Innerduct for the period commencing June 1, 2000 and continuing through and including May 31, 2001.

In the event that each of the Second, Third and Fourth Innerducts shall have 340 "lit" fibers on the cable therein (with the Fifth and Sixth Innerducts having no "lit' fibers therein), Fixed Rent for such Innerducts would be $7,192,019.64 as determined in the Third Example: Second through and Including Sixth Innerducts under Section 5A(b). $7,192,019.64 multiplied by 1.05 would be $7,551,620.62 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2000 and continuing through and including May 31, 2001.

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period

commencing June 1, 2000 and continuing through and including May 31, 2001 would be $10,068,827.49.

II. Second Set of Examples for Fixed Rent Increase Formula

The following is an example of the calculation of Fixed Rent for the one (1) year period commencing on June 1, 2001 through and including May 31, 2002. For this Year, the Measurement Period is March 1, 2001 through and including February 28, 2002.

For purposes of this example, assume that (a) each of the Innerducts has 288 strands of fiber on the cable therein, (b) each of the fibers in the Second, Third and Fourth Innerducts became "lit" on June 1, 2001 (with no "lit" fibers in the Fifth and Sixth Innerducts) and (c) the Increase Factor for the Year commencing June 1, 2000 through and including May 31, 2001 was 1.05.

Assume CPI for February, 2001 (CPI 1982-84 equals 100) was 140 and CPI for February, 2000 (CPI 1982-84 equals 100) was 136.8. 140 divided by 136.8 equals 1.023. Because 1.023 is less than 1.025, the Increase Factor used to calculate Fixed Rent for this Year would be 1.025:

As determined in the First Example: First Innerduct in Section 5A(a), Fixed Rent for the First Year on account of the First Innerduct Innerduct would be $2,040,740. For the Year commencing June 1, 2000 through and including May 31, 2001, we have assumed, as set forth above, an Increase Factor of 1.05. Thus, $2,040,740 multiplied by 1.05 equals $2,142,777 which would have been the Fixed Rent for the First Innerduct for the one (1) year period commencing June 1, 2000 through and including May 31, 2001. For the next Year (i.e., the Year commencing June 1, 2001 and continuing through and including May 31, 2002), the Increase Factor, as determined above, is 1.025. Thus, $2,142,777 multiplied by 1.025 equals $2,196,346.40 and this would be the Fixed Rent payable on account of the First Innerduct for the one (1) year period commencing June 1, 2001 and continuing through and including May 31, 2002.

As determined in the First Example: Second through and including Sixth Innerducts, Fixed Rent for such Innerducts would be $6,122,220 as adjusted as follows. First, even though no Fixed Rent was owed by the Company on account

of such Innerducts prior to June 1, 2001, such figure would be multiplied by 1.05, the Increase Factor applicable to the Year commencing June 1, 2000 through and including May 31, 2001, which equals $6,428,331. For this Year (i.e., the Year commencing June 1, 2001 and continuing through and including May 31, 2002), the Increase Factor, as determined above, is 1.025. Thus, $6,428,331 multiplied by 1.025 equals $6,589,039.27 which would be the Fixed Rent for such Innerducts for the one (1) year period commencing June 1, 2001 through and including May 31, 2002

Under this example, total Fixed Rent payable by the Company under this Agreement for the one (1) year period commencing June 1, 2001 through and including May 31, 2002 would be $8,785,385.67.

(d) In the event that the Company installs more than the First, Second and Third Innerducts as part of the Company's Communication System and no fiber is "lit" in each of the Fourth, Fifth and Sixth Innerducts (such Innerducts in which no fiber is "lit" being hereinafter referred to individually as an "Affected Innerduct" and collectively as the "Affected Innerducts") on or before the end of the eighth (8th) Year of the Term, the Authority, at its sole option at any time or from time to time thereafter, shall have the right and option to purchase from the Company any or all of the Affected Innerduct(s) upon payment to the Company of a purchase price (the "Affected Innerduct Purchase Price") equal to the "incremental cost" of constructing such Affected Innerduct (which Affected Innerduct Purchase Price may, at the Authority's sole option, be paid to the Company in the form of a rent credit (the "Rent Credit") to the Company against the next installments of Fixed Rent due the Authority under this Agreement) by providing to the Company written notice of its election to so purchase any or all of the Affected Innerduct(s), provided that (i) not later than the sixth (6th) month anniversary of the giving of such notice by the Authority, the Affected Innerduct(s) to be purchased by the Authority as designated in such notice then shall not have any "lit" fiber on the cable therein or (ii) the Authority shall not have received notice from the Company that it intends that not less than 96 fibers be deemed "lit" therein effective upon the date of the giving of such notice to the Authority. If on or before the sixth (6th) month anniversary of the giving of such notice to purchase from the Authority, (i) any Affected Innerduct so designated in such notice shall have "lit" fiber on the cable therein or (ii) the Authority shall have received notice from the Company that the Company intends that not less than 96 fibers be deemed "lit" therein effective upon the date of the giving of such notice to the Authority, then the Authority's right and option to purchase such Affected Innerduct

automatically shall terminate. At the closing of such transfer, the Company shall convey all of its right, title and interest in and to such Innerduct, free and clear of all liens and encumbrances, pursuant to the Bill of Sale in the form of Exhibit B attached hereto. As to such Affected Innerduct so conveyed to the Authority at such closing, (i) the Company shall be relieved of any further payment obligation to the Authority arising from and after the date of the conveyance thereof to the Authority (the Company remaining fully liable for any obligation arising on or prior to the date of such conveyance with respect to such Innerduct) and (ii) the Authority shall be free to sell, transfer, license, sublet or otherwise transfer or dispose such Innerduct to any third party (including, without limitation, competitors of the Company) for any purpose that the Authority sees fit in its sole discretion, and that such Innerduct may be used for any use or purpose whatsoever (including, without limitation, the transmission of data and communications). For the purposes hereof, the term "incremental cost" shall mean the actual out-of-pocket incremental materials and construction cost incurred by the Company to add such Innerduct to the Company's Communication System at the time of the original construction thereof. Incremental cost is expressly distinguished from, and not intended to be, the "pro rata" cost of such Innerduct, and shall not include any interest component except to the extent that same was incurred by the Company in the original construction of the Company's Communication System, or any inflation or escalation factor or adjustment. Within six (6) months following the completion of construction of the Company's Communication System, the Company shall provide to the Authority its good faith estimate of the incremental cost of such Innerduct together with reasonably detailed information to support such estimate (collectively, the "Company's Affected Innerduct Estimate"). The parties agree to cooperate with one another and negotiate in good faith to agree upon such incremental cost, and the Company agrees to provide to the Authority any further information reasonably requested by the Authority to expedite its determination of the incremental cost of such Innerduct. In the event that despite such good faith negotiations, the parties have failed to reach an agreement on such incremental cost within 60 days following the Authority's receipt of the Company's Affected Innerduct Estimate, then either party may submit this matter to Arbitration. The closing of the transfer of such Innerduct shall occur on the later to occur of the 30th day following the Company's receipt of the Authority's notice to so purchase or the 30th day following the designation of the Affected Innerduct Purchase Price, at the Authority's principal place of business, unless the parties otherwise shall mutually agree in writing. If the Authority elects to pay for such Innerduct with a Rent Credit, the Affected Innerduct Purchase Price for such Innerduct (or the unreimbursed portion thereof) shall accrue interest at a 10% annual rate, compounded annually, until such Credit (together with such interest thereon) shall be satisfied. At any time after the conveyance of such

Innerduct to the Authority, the Authority shall have the right to pay to the Company the then amount of the Rent Credit (together with accrued interest thereon) in order to satisfy same.

B. The Fixed Rent shall be payable annually, in advance, on or before the first day of each Year during the Term to such address as the Authority shall from time to time designate by notice (without any obligation or requirement on the part of the Authority to send the Company an invoice for Fixed Rent, provided, however, that if the Authority elects in its sole discretion to send any such invoice to the Company, same shall not (i) require or obligate the Authority to send the Company any such invoice in subsequent years or (ii) change or extend the foregoing due date for the payment of Fixed Rent) in lawful money of the United States. Until notice of some other designation is given by the Authority, Fixed Rent shall be paid by remittance to the Authority. All payments of Fixed Rent shall be made (a) by the mailing or delivering to the Authority of the Company's check in the amount of such payment drawn on a commercial bank with offices in the continental United States, and shall be deemed timely made if received by the Authority on or before the due date thereof, provided that if such check is not paid and honored upon presentation thereof, duly endorsed, such check shall not constitute payment or (b) by wire transfer of immediately available Federal funds on or before the due date thereof in accordance with wiring instructions provided to the Company by the Authority.

C. Notwithstanding anything to the contrary contained in Section 5B, (1) the Company shall pay $361,989 (the "First Year Fixed Rent Partial Payment") to the Authority concurrently with the execution and delivery of this Agreement which shall be applied against the Fixed Rent owed for the First Year, with the balance (the "First Year Fixed Rent Balance") of such Fixed Rent for the First Year being due and payable to the Authority upon the earlier to occur of (i) completion of the Company's Communication System or (ii) the end of the First Year, and (2) if at any time during any Year during the Term, any fibers in the Second through and including Sixth Innerducts shall become "lit", the Company shall so notify the Authority and if Fixed Rent attributable therefor has not been paid by the Company for such Year, the Company shall pay same simultaneously therewith, prorated from the date such fiber(s) became "lit" through and including the end of such Year. In addition, the Company agrees to pay the Authority any adjustment in Fixed Rent as a result of an increase in the length of the Easement Area pursuant to the terms hereof promptly following the increase thereof. Any amounts owed the Company as a result of a decrease in the length of the Easement Area pursuant to Section 13B or 19C hereof shall be remitted to the Company in the form of a credit against the next installment of Fixed Rent due under this Agreement (or a refund of such funds if the Term has ended and the Company has no further obligation to the Authority).

D. Concurrently with the payment to the Authority of the First Year Fixed Rent Balance, the Company shall provide the Authority with a written certification, in the form of Exhibit E-1 attached hereto, containing the exact number of fibers installed on the cable in the First Innerduct and the other Innerducts. Notwithstanding anything to the contrary contained in this Agreement, the Company acknowledges that the number of fibers on the cable in the First Innerduct may be increased during the Term beyond the amount contained in such certification from the Company only upon payment to the Authority of Fixed Rent for such additional fibers calculated as if such

fibers were initially installed on the cable in the First Innerduct. With each subsequent annual Fixed Rent payment, the Company shall provide the Authority with a written certification, in the form of Exhibit E-2 attached hereto, containing the exact number of Innerducts with "lit" fiber and the number of "lit" fiber in each such Innerduct as of the date of such certification. At any time or from time to time during the Term, the Company agrees to provide to the Authority such other and further certifications respecting the Innerducts or the Company's obligations under this Agreement as the Authority may reasonably request.

E. In addition, concurrently with the execution and delivery of this Agreement and in satisfaction of the Company's obligation to the Authority under Section B2(a) of the Letter of Intent, the Company shall pay $50,000 to the Authority to reimburse the Authority for certain reasonable out-of- pocket costs incurred by the Authority in connection with the negotiation, documentation and implementation of the Letter of Intent and this Agreement. The Authority acknowledges receipt of $25,000 from the Company at the time the Letter of intent was executed as a deposit towards this $75,000 maximum sum. The Authority agrees to provide the Company with copies of invoices documenting such out-of-pocket costs.

**6. Compliance with Legal Requirements.**

A. From and after the Commencement Date, the Company shall comply promptly with any and all present and future, laws, rules, orders, ordinances, regulations, statutes, requirements, codes and executive orders irrespective of the nature of the work required to be done, extraordinary as well as ordinary, foreseen or unforeseen, of any and all federal, state, city or other governmental, public or quasi-public authorities now existing or hereafter created, and of any and all of their departments and bureaus, including, without limitation, all applicable Environmental Laws, and of any Board of Fire Underwriters or other body exercising similar functions (collectively, "Legal Requirements") which in any way affect or relate to the Company, the Easement Area and/or the Company's Communication System, including, without limitation, (i) the use, non-use, construction, maintenance, use or occupation of the Easement Area and/or the Company's Communication System and (ii) all laws of the Commonwealth of Massachusetts relating to taxes. In furtherance of the foregoing, it shall be the sole responsibility of the Company to obtain, at its sole cost and expense, any and all applicable federal, state and local permits, approvals, licenses and reviews, including, without limitation, the review and approval of all applicable local zoning and other authorities, in connection with the use, nonuse, construction, maintenance, use and occupation of the Easement Area and/or the Company's Communication System.

B. Notwithstanding anything to the contrary contained in Section 6A, with respect to compliance with Legal Requirements relating to Hazardous Materials, the Company shall be relieved from any obligation hereunder to comply with such Requirements to the extent that the Company's indemnity and hold harmless agreement shall not cover same pursuant to Section 12B(2).

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION

| | | |
|---|---|---|
| Vera J. Hinshaw,<br>Vera J. Hinshaw Family Limited Partnership, and Generation Homes, L.L.C.,<br>on behalf of themselves and all others similarly situated,<br>Plaintiffs, | ) | |
| v. | ) | Civil Action No. IP99-0549-C-T/G |
| AT&T Corp. and<br>AT&T Communications, Inc.,<br>Defendants. | ) | |

# CERTAIN INDIANA "TELECOMMUNICATION CABLE" CLASS SETTLEMENT AGREEMENT

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The Plaintiff Settlement Class, by and through the undersigned Settlement Class Counsel, and AT&T Corp. and AT&T Communications, Inc. ("AT&T") hereby enter into this Settlement Agreement (the "Agreement") providing for settlement of the claims described below, pursuant to the terms and conditions set forth below, subject to the approval of the Court.

WHEREAS Settlement Class Counsel have prosecuted and are continuing to prosecute on behalf of property owners a number of lawsuits arising out of the installation, occupation, maintenance, and use of fiber optic or other telecommunication cables ("cable" or "telecommunication cable") on property occupied at one time or another by railroads and utilities;

WHEREAS on August 21, 1998, a nationwide class action was certified against AT&T in Indiana in Hamilton County Superior Court Number 1 in *Vera J. Hinshaw, et al. v. AT&T Corp., et al.*, Cause No. 29D01-9705-CP-308 (*Hinshaw*);

WHEREAS on August 21, 1998, Settlement Class Counsel were appointed by the Indiana Hamilton County Superior Court Number 1 in *Hinshaw* to represent the described class of landowners;

WHEREAS on September 18, 1998, AT&T removed the *Hinshaw* case to this Court;

WHEREAS the parties to this Agreement (the "Parties") have agreed that those claims of the various members of the certified class relating to property abandoned by railroads can be resolved on a state-by-state basis;

WHEREAS on April 21, 1999, Settlement Class Counsel filed this Indiana statewide Class Action Complaint (the "Complaint") on behalf of Vera J. Hinshaw, Vera J. Hinshaw Family Limited Partnership, Generation Homes, L.L.C., and others similarly situated;

WHEREAS AT&T has denied and continues to deny Plaintiffs' claims in the Complaint and other similar actions, has denied any wrongdoing or liability to Plaintiffs of any kind, and has raised numerous affirmative defenses;

WHEREAS Settlement Class Counsel have conducted a thorough examination and investigation of the facts and law relating to the matters set forth in the Complaint;

WHEREAS the Parties have engaged in extensive, arm's-length negotiations extending for a period in excess of one year regarding the settlement of Abandoned Property Claims in Indiana;

WHEREAS, after analyzing the facts and law applicable to Plaintiffs' claims, and taking into account the burdens, risks, uncertainties, and expense of litigation, as well as the fair, cost-effective, and assured method of resolving claims of the Settlement Class under this Agreement, the undersigned Settlement Class Counsel have concluded that this Agreement -- offering, among other things, net compensation benefits averaging $45,000 per linear mile of abandoned railroad corridor -- is fair, reasonable, adequate, and in the best interests of the Settlement Class;

WHEREAS AT&T has similarly concluded that this Agreement is desirable in order to reduce the time, risk, and expense of multiple-claim litigation, and to resolve finally and completely the Abandoned Property Claims of the Members of this Settlement Class; and

B. **Settlement Notice and Administrative Costs; Establishment of Administrative Account**

1. AT&T shall be responsible for the reasonable costs of administering this Settlement and providing the Court-approved Notice to Class Members. These costs shall be paid out of a separate Administrative Account, to be established by the Claims Office (or a Court-appointed escrow agent). At AT&T's option, the Administrative Account shall be established as a Qualified Settlement Fund within the meaning of Section 468B of the Internal Revenue Code of 1986, as amended, and all rules and regulations thereunder.
2. AT&T shall make an initial deposit of $300,000 (three hundred thousand dollars) into the Administrative Account, and shall make such additional deposits thereafter as the Court deems necessary for the reasonable expenses of administering the Settlement. In evaluating the need for additional deposits, the Court shall consider, among other things, any future amounts that may be deposited into the Administrative Account from the Claimant Account pursuant to Section V.C.4 below.
3. The Parties understand and agree that some of the costs of administering the Settlement and assembling necessary information for providing Notice have been incurred prior to execution of this Agreement. Such costs nonetheless shall be treated as administrative expenses and shall be reimbursable out of the Administrative Account.

C. **Class Counsel Fees and Expenses**

1. AT&T shall pay the reasonable fees and expenses of Settlement Class Counsel as awarded by the Court. Settlement Class Counsel, however, shall not seek from the Court a cash award of fees and expenses in excess of $15,000 per linear mile of the approximately 80 miles of Abandoned Property listed on the Compensation Schedule attached as Exhibit B, and AT&T shall not object to an award of fees and expenses in that amount.
2. The Parties understand and agree that Settlement Class Counsel may seek an interim award (or awards) of fees and expenses, which shall be payable by AT&T upon approval by the Court; provided, however, that AT&T shall not be required to pay any such fees and expenses unless and until the Order and Judgment is Final. Moreover, AT&T's total maximum obligation for Settlement Class Counsel's fees and expenses over the duration of this Agreement is the $15,000 per linear mile limitation stated in paragraph 1 above.
3. Settlement Class Counsel also reserve the right to seek from the Court non-cash compensation in the form of beneficial ownership of a portion of any Corridor Entity that may be established as described in Section VI below.

## V. NET CASH BENEFITS

A. **Generally**

1. There shall be three categories of net cash benefits under this Agreement: Current Landowner Benefits, Prior Landowner Benefits, and Other Landowner Benefits.
2. The Claims Administrator shall be responsible for reviewing and evaluating Class Member claims for Current, Prior, and Other Landowner Benefits in accordance with Sections VII through IX below and the other provisions of this Agreement.

CSX TRANSPORTATION

Real Estate Department
100 North Charles Street
Baltimore, Maryland 21201

(301) 237-3296

December 18, 1986 PMK/sb

In reply refer to:
WF8823

AT&T
10 South Canal Street
Chicago, Illinois 60606

Attention: Mr. James L. Mack
Supervisor - Right-of-Way

Gentlemen:

This refers to Basic and Operating Agreement dated May, 1986, between CSX Rail Transportation Units and AT&T Units covering your use of Railroad property between Dayton and Troy, Ohio, for the installation of fiberoptic cable.

In accordance with Sections 3.13 and 3.14 of the aforesaid Basic and Operating Agreement, this letter will serve to amend said Agreement as follows:

1. Effective December 1, 1986, AT&T's facilities extending between Richmond and Muncie, Miami Subdivision, Indiana, between Mile Posts 63.5 and 102.2, consisting of a total distance of 38.7 miles, more or less, as indicated on AT&T's Drawing Number CR-95624, dated September 2, 1986, shall be included in the aforesaid Basic and Operating Agreement;

2. All other terms and conditions of said Agreement shall remain in full force and effect.

Please indicate your understanding and acceptance of the foregoing by having the duplicate of this letter executed and returned to me. No further revision of said lease/agreement will be necessary other than this letter exchange which will constitute a supplement thereto.

Sincerely,

RAILROAD

By Mark R. Mutschler
Manager-Real Estate

ACCEPTED this 15th day of January, 1987.

AT&T

By J. L. Mack Manager
(title)

RE-89324

AGREEMENT No. CSX-7249

# FIBER OPTIC CORRIDOR

# BASIC AND OPERATING AGREEMENT

BETWEEN

CSX RAIL TRANSPORTATION UNITS

(Chessie System Railroads
Seaboard System Railroads)

AND

AT&T UNITS

DATED: MAY / , 1986

C[redacted]0026966

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Note:

| | |
|---|---|
| Exhibit A is the | Route Designation Map (Preliminary) |
| " B " " | As-Built Drawings (to be added) |
| - C, D - | No Exhibits - |
| " E " " | Form of Occupancy Agreement |
| " F-1 " " | Form of Rental Lease |
| " F-2 " " | Form of Wire Line Crossing Agreement |
| " G " " | Sign Specifications |
| " H " " | Underground Cable Specification |
| " I " " | AAR Communications Manual* |
| " J " " | Bridge Specifications |
| " K " " | Emergency Procedures |

* as reference only.

BASIC AND OPERATING AGREEMENT (DATED MAY 1, 1986)

1. BASIC TERMS:

1.1 The Consideration for the grant of Lease set forth in Section 3.14 herein shall be $ 11,500 per mile for an estimated 20 miles of occupancy as shown on Exhibit "A". Actual miles shall be finally determined by Railroad from As-Built Drawings. AT&T shall pay to Railroad contemporaneously with the execution of this Agreement by AT&T a deposit of 10% of the total Consideration based upon the rate and mileage above. Upon receipt of this signed Agreement from Railroad, AT&T shall pay the balance of the estimated Consideration. Should Railroad fail to execute this Agreement, it shall return such deposit to AT&T within ten (10) working days, and neither party shall have liability to the other arising out of the proposed terms of this Agreement or any acts or omissions in reliance thereupon. Final accounting shall be made by Railroad on actual constructed miles within thirty (30) days of AT&T submission of As-Built Drawings.

1.2 The Lease or right to use Railroad's Right-of-Way shall be for an initial term of twenty-five (25) years with renewal for an additional term of twenty-five (25) years. Consideration for such renewal shall be the per mile unit rate in Section 1.1. plus 75% of the total increase (if any) of C.P.I. (or equivalent DOL or BLS table) between 1986 and 2010 (FYE 6/30).

1.3 As part of the consideration for the use of Railroad's Right-of-Way and the grant of the Lease, AT&T may be required to provide to and install for Railroad, at AT&T's sole cost and expense, a one and one quarter inch (1¼") nominal inside diameter corrugated PVC innerduct or of equivalent size and quality comparable to AT&T's. The innerduct shall be installed in prudent and workmanlike manner no later than when AT&T installs its Cable pursuant to this Agreement. AT&T makes no other warranties or guarantees of quality or of condition after placement. The innerduct shall be provided along the entire length of the Railroad Right-of-Way occupied by AT&T. Such installed innerduct shall be the sole property of Railroad, its successors, assigns or licensees, and any maintenance, repair, modification or removal thereof or liability therefor shall be the sole responsibility of Railroad, its successors, assigns by Railroad, or licensees.

Such innerduct ( ) is (X) is not required by Railroad on the subject Right-of-Way.

1.4 After execution hereof by both parties, AT&T, at AT&T's sole risk, cost and expense, will furnish all materials, and shall construct, maintain, use, change or remove AT&T Facilities or any part thereof in accordance with the design and specifications on approved plan(s) as in this Agreement provided, at a time and in a manner satisfactory to Railroad, all in a prudent and workmanlike manner, in conformity with any applicable statutes, orders, rules,

109TH STORY of Level 1 printed in FULL format.


Austin American-Statesman

November 24, 1998

SECTION: Metro/State; Pg. B1

LENGTH: 620 words

HEADLINE: Cap Metro to fix railroad bridges; Decision to spend $1.3 million

BYLINE: Debbie Hiott

BODY:

Capital Metro will spend up to $1.3 million to inspect and repair 20 bridges on its 162-mile railroad line, which has suffered from years of insufficient maintenance.

An inspection, prompted by a flood-related derailment last month on a trestle in East Austin, showed the need for repairs. Without the work, officials said, bridges could eventually collapse or cause derailments. Only one bridge is considered an emergency, however, and freight operations are not taking place in that section until repairs are done. The Oct. 20 derailment spilled freight cars loaded with lime into a tributary of Boggy Creek.

On Monday, the Capital Metro board approved spending the $1.3 million for the railroad work. The amount includes $390,000 that was spent to clean and contain the spill in the Boggy Creek tributary.

The work comes after years of debate over responsibility for maintaining and improving the line. With previous owners, including Southern Pacific Railroad and the City of Austin, and previous operators, including RailTex, the debate generally resulted in no one making all the necessary repairs. What Capital Metro is doing now is catching up after years of neglect, said Joe Ramirez, manager of railroad right of way.

In addition to the collapsed trestle, a bridge near Manor must be repaired before the freight operator can resume service in the area. The repairs are expected to be completed within seven weeks.

Don Cheatham, owner of freight operator Longhorn Railway, said the bridge maintenance has been needed for years. "It's long overdue," he said. "This is deferred maintenance."

Cheatham said the previous freight operator did not do some routine maintenance, and that caused the line to deteriorate.

Just who would be responsible for what type of maintenance -- Capital Metro or Longhorn Railway -- has often been disputed. In this case, Capital Metro will pay for the major repairs, Ramirez said. "We're dealing with the public safety issues and the operations issues right now," he said.

Cheatham said he sees it as Capital Metro's responsibility.

"As the owner of the railroad, they have certain obligations," he said. "We don't believe that the bridges can survive much longer."

Besides, Cheatham said, Longhorn has done as much maintenance as the company can afford.

The freight operation has been running a deficit because of the derailment and problems with Union Pacific. The large railroad conglomerate is necessary to Austin's short line operations because it provides connecting cars for shippers. Recently, Union Pacific raised rates for aggregate shippers -- most of Cheatham's customers -- making it difficult for them to ship by rail anymore.

Capital Metro is required by the Federal Railroad Administration to operate the railroad as a freight line.

In addition, the transit authority has considered using portions of the line for a passenger rail system.

But ownership has been costly. Before the bridge inspections, Capital Metro earlier this year spent $614,000 for five new street crossings and $986,550 for 54 signals because of safety concerns.

But the railroad is also bringing in some revenue. Under a license agreement approved by the board of directors Monday, a telecommunications company will pay Capital Metro $12,000 a mile, or $372,000 a year over 20 years, to allow installation of fiber optic cables along 31 miles of the transit authority's right of way. That would mean more than $7 million to help pay for repairs and improvements along the line.

General Manager Karen Rae said Capital Metro is exploring similar ways to recoup railroad expenses.

"We need to look to more opportunities to use this asset," she said.

LOAD-DATE: November 27, 1998

## PG&E CORRIDOR RENTAL ANALYSIS

In this section we address the Mission Statement reporting requirements for the earlier described PG&E corridor. All conclusions regarding the PG&E corridor are shown in a table on the last page of this section just before the PG&E Addenda.

### Market Rent to PG&E Without Sublease Rights

The first step is to estimate the base market rent to PG&E without considering any sublease rights. We first estimate market rent assuming all the improvements (conduits, fiber optic cables, manholes and vaults) benefit only the Golden Gate National Recreation Area (GGNRA).

**Valuation Assuming All Improvements Benefit GGNRA.** As earlier described PG&E occupies 34,693 linear feet of corridor space extending through the Presidio, across the Golden Gate Bridge, and through Fort Baker. We now estimate the market rent for this corridor assuming all improvements benefit GGNRA regardless of what party incurred the costs of installing the conduit systems.

The best rental comparable is the earlier described AT&T sublease from Pacific Bell. This Presidio segment of the Pacific Bell easement corridor near Crissy Field is over 1.5 miles. The current rent is $6.34 per linear foot per year. Such rent is charged for all Pacific Bell conduits in San Francisco. The conduit space on the Bay Bridge, before the formation of the Bay Bridge Consortium in 1995, had also been leased at $6.34 per linear foot by Pacific Bell. Another good comparable is the minimum $6.00 per linear foot per year rent charged for passage through the three mile long BART tube between San Francisco and Oakland.

BART representative, Joe Baybado, said the highest rent he knows of for bridge crossings or other "choke points" is $10.00 per linear foot charged for the Holland Tunnel in New York City. A study provided by Nicolas Dempsey, the San Francisco Port Authority real estate officer, shows conduit rent for East Coast bridge crossings ranging from nominal fees to $5.00-$13.00 per linear foot per year; the upper-end rents are for short segments between Manhattan and New Jersey. Most charges are nominal. The isolated high-end rate, well above the other charges, was based on annual CPI adjusted figures compounded since 1952. The comparables provide a bracket of rents but do not provide a basis for direct comparison due to dissimilarities in location and other factors.

The entire PG&E corridor distance equates to 6.6 miles. The Golden Gate Bridge and indeed the Presidio and Fort Baker represent an extended choke point through which conduits must pass to link San Francisco and Marin Counties. We estimate market rent for the PG&E corridor assuming that all improvements benefit GGNRA at $6.34 per linear foot per year. This is equivalent to the maximum linear

foot rent charged for prime Bay Area locations and San Francisco Bay crossings.

We consider the $6.34 per linear foot conclusion to be the market rent as of the first year. Thereafter rents should increase annually based upon Consumer Price Index adjustments in similar manner to the rental increases for conduit space through the BART tube as earlier discussed.

The $6.34 per linear foot per year rental conclusion is the starting rent for the subject PG&E corridor. Multiplied by 34,693 linear feet, this equates to a first year rent of $219,954.

**Valuation Assuming Improvements Benefit Installing Parties.** PG&E installed portions of the 34,693 feet of conduit through the Presidio and Fort Baker. Representatives of the company with whom we met estimate that of the total corridor distance, it installed 21,303 linear feet. The balance, 13,390 linear feet, would represent those portions installed by the US Army through the Presidio and Fort Baker plus the conduit length across the Golden Gate Bridge.

We present a second set of distances based on estimates by GGNRA representatives. GGNRA estimates that only 18,044 feet of the Presidio conduit was installed by PG&E. Breakdown of the two sets of estimates from PG&E and from GGNRA are shown on the following page.

In this section we value the corridor segments with conduits installed by PG&E differently than we value the segments with conduits installed by the US Army. (We hereafter refer to GGNRA instead of the US Army as the installing party.) Under this scenario, we appraise the corridor segments wherein conduits were installed by PG&E as if they were land only, whereas we appraise the corridors in which conduits were installed by GGNRA (US Army) as an existing conduit system. The rental value of the easement corridor as improved with the conduit system is much higher than the rental value of the easement corridor for the land only as was earlier discussed.

"across-the-fence" (ATF) method. This method is considered unreliable for this appraisal. It is more applicable to heavy intensity easements such as for underground pipes and high power transmission lines. The "rent per linear foot" method directly applies the conclusions from analysis of comparable data, i.e., market rent per linear foot, to the lengths of the subject easements.

Easements for fiber optics, television cables, electrical wires, and telephone wires crossing private and public properties are commonly conveyed between the property owners and the parties needing or desiring utility extensions from one point to another. Many such easements do not even specify easement width but rather only the easement length. The lease or sale of these private easement rights serve for comparison analysis as the basis for estimating the fair market rent of the subject easement rights.

Market Data

There are two sets of market data useful for analyzing the rental values of the subject corridors on a price per linear foot basis. The first set includes easement transactions involving only the rights to use the land. The second set involves easement conveyances for not only the rights to use the land but also the rights to use existing conduits, cable, manholes, and vaults. For the first set of easement comparables, the tenants or grantees would be responsible for the trenching and installation costs to provide for the conduit system. There are many examples, particularly involving railroad rights-of-way, whereby the owners of the land install the conduits and other equipment but are then reimbursed for the cost of such installation by the easement tenant or grantee.

**Rent for Land Only.** The rents and prices for the first set of easement comparables, those reflecting the rights to use the land only, are considerably less than those rents and prices for the existing conduit systems. Rental comparables for the property rights are shown in the table on the following three pages. This table shows prices and rents for easement rights to land only conveyed between the years 1983 and 1997. Of the 30 comparables, eight are rentals ranging between $.31 and $1.80 per linear foot per year. Analysis of these 30 comparables is helpful in determining the impact of various factors of value such as 1) changing economic/market conditions, 2) location, 3) flexibility of easement use, 4) what may physically occupy the corridors, 5) length of the easement corridor, and 6) restrictions on the use of the corridor.

It is also important to note from the table the wide variation in prices resulting from imperfect knowledge. Much of the data presented in the table were very difficult to ascertain, much more difficult than sales or leases of conventional real estate. Not only were there difficulties to understanding what physically was

Easement Sales and Leases for Land Only
(Price/Linear Foot or Rent/Linear Foot/Year)

| Comparable Number | Easement Number | Identification | Transaction Date | Price | Length of Corridor | Price/ Linear Foot | Grantor | Grantee | Easement Location/ Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | SF103 | One 2-inch underground conduit for CATV distribution cable at 280 Crestlake Drive, San Francisco | 11/20/85 | $100 | 80 feet | $1.25 | 280 Crestlake resident | Viacom Cablevision | Runs along side of interior block home site |
| 2 | SF102 | One 2-inch underground conduit for CATV distribution cable at 72 Escondido Avenue, San Francisco | 12/07/85 | $120 | 100 feet | $1.20 | 72 Escondido resident | Viacom Cablevision | Runs along side of interior block home site |
| 3 | SF101 | One 2-inch underground conduit for CATV distribution cable at 39 El Mirasol Place, San Francisco | 12/12/85 | $60 | 45 feet | $1.33 | 39 El Mirasol resident | Viacom Cablevision | Runs along side of interior block home site |
| 4 | SF100 | One 2-inch underground conduit for CATV distribution cable at 401 College Avenue, San Francisco | 12/28/85 | $50 | 35 feet | $1.43 | 401 College resident | Viacom Cablevision | Runs along back corner of home site |
| 5 | SF104 | One 2-inch underground conduit for CATV distribution cable at 54 Crescent Avenue, San Francisco | 02/10/85 | $100 | 100 feet | $1.00 | 54 Crescent resident | Viacom Cablevision | Runs along side of interior block home site |
| 6 | SF37 | Two 4-inch underground conduits for electric lines on city land between Marview Way and Twin Peaks Boulevard, San Francisco | 04/04/86 | $1,500 | 430 feet | $3.49 | City & County of San Francisco | Pacific Gas & Electric | Runs across open space area near Twin Peaks |
| 7 | SM450 | Underground electrical line for street lights extending across Tunnel Avenue, Brisbane | 8/11/83 | $325 | 85 feet | $3.82 | Southern Pacific Transportation Company | City of Brisbane | Runs under private street |
| 8 | SM37 | A 2-inch underground electric line crossing 25th Avenue and connecting to a traffic signal in San Mateo | 06/06/85 | $375 | 123 feet | $3.05 | Southern Pacific Transportation Company | City of San Mateo Department of Public Works | Runs under railroad/street crossing |
| 9 | SC5 | Underground 24" conduit for heavy electric lines crossing SPTC tracks north of Walsh Avenue in San Carlos | 09/20/84 | $325 | 80 feet | $4.06 | Southern Pacific Transportation Company | City of Santa Clara | Runs across railroad right-of-way |
| 10 | CC2 | Overhead communications cable west of Morgan Territory Road in unincorporated Contra Costa County | 07/25/84 | $5,000 | 5,281 feet | $0.93 | George Canada and Robert Elworthy | GTE Sprint Communications Corp. | Runs over two land parcels in rural area of eastern Contra Costa County |
| 11 | NA1 | Overhead and underground light power lines extending across Napa State Hospital in Napa | 04/09/86 | $500 | 774 feet | $0.65 | State of California | Pacific Gas & Electric | Runs north-south into rear of State hospital |

Easement Sales and Leases for Land Only
(Price/Linear Foot or Rent/Linear Foot/Year)

| Comparable Number | Easement Number | Identification | Transaction Date | Price | Length of Corridor | Price/ Linear Foot | Grantor | Grantee | Easement Location/ Comments |
|---|---|---|---|---|---|---|---|---|---|
| 12 | NA2 | Underground communications extending along private road in rural Napa County | 07/07/87 | $7,000 | 2.91 miles | $0.46 | McKellar and Associates | American Telephone & Telegraph | Runs along rural private road |
| 13 | CA1 | Underground fiber optics extending between Houston and Los Angeles | 04/27/87 | Payable by segment activiated | 1,500 miles | $1.52 | Southern Pacific Transportation Company (SPTC) | MCI Telecommunications Company | Runs along railroad right-of-way/SPTC gets fiber optics use |
| 14 | CA2 | Underground fiber optics extending between Los Angeles and San Francisco | 04/27/87 | Payable by segment activiated | 554 miles | $1.52 | Southern Pacific Transportation Company (SPTC) | MCI Telecommunications Company | Runs along railroad right-of-way/SPTC gets fiber optics use |
| 15 | MA220 | Underground telephone line extending along Wornum Avenue in Corte Madera | 01/21/88 | $400 | 400 feet | $1.00 | State of California | Pacific Bell | Runs adjacent to public street |
| 16 | SO2 | Underground fiber optics cable north of Healdsburg | 1993 | $500,000 | 42 miles | $2.25 | Southern Pacific Transportation Company | Pacific Bell | Runs along railroad right-of-way |
| 17 | BA1 | Underground fiber optics extending through six Bay Area Counties along Southern pacific right-of-way (Viacom's "Bay Ring") | 05/31/84 | Confidential | 133.21 miles | Confidential | Southern Pacific Telecommunications Company | Viacom Cable | Runs along railroad right-of-way |
| 18 | AL336 | Underground electric lines between industrial properties in Pleasanton | 05/11/95 | $500 | 100 feet | $5.00 | Union Pacific Railroad Company | Pacific Gas & Electric | Runs under railroad tracks |
| 19 | AL338 | Wireline underground electric line crossing under Southern Pacific line between industrial parks and Fremenot | 07/06/95 | $500 | 60 feet | $8.33 | Union Pacific Railroad Company | Pacific Gas & Electric | Runs under railroad right-of-way |
| 20 | AL337 | Six overhead electric lines crossing over Union Pacific tracks east of Bernal Avenue in Pleasanton | 07/06/95 | $500 | 101 feet | $4.94 | Union Pacific Railroad Company | Pacific Gas & Electric | Runs over railroad right-of-way |
| 21 | AL339 | Westerly side of San Leandro Street at the Moorpark Street intersection, Oakland | 07/06/95 | $500 | 810 feet | $6.17 | Union Pacific Railroad Company | Pacific Gas & Electric | Runs under railroad tracks |
| 22 | AL351 | One one-inch underground conduit for fiber optics north of Interstate 580 and west of Arnold Road in Dublin | 8/21/96 | $6,915 | 1,038 feet | $6.66 | Department of Army | Sprint Communications, LP | Runs parallel to an Interstate highway |

Easement Sales and Leases for Land Only
(Price/Linear Foot or Rent/Linear Foot/Year)

| Comparable Number | Easement Number | Identification | Transaction Date | Price | Length of Corridor | Price/ Linear Foot | Grantor | Grantee | Easement Location/ Comments |
|---|---|---|---|---|---|---|---|---|---|
| 23 | SO1 | Underground fiber optics cable north of Healdsburg | 07/01/86 | $6,030/year | 3.66 miles | $.31/year | Southern Pacific Transportation Company | Pacific Bell | Runs along railroad right-of-way |
| 24 | SC2 | Overhead fiber optics between Oregon Expressway and Regnstroff Avenue in In Palo Alto/Mountain View | 10/93 | $4,750/year | 14,100 feet | $ 34/year | SamTrans | Sprint | Runs along railroad right-of-way |
| 25 | SF85 | Overhead fiber optics between Caesar Chavez Street and Oakdale Avenue in San Francisco | 03/94 | $1,000/year | 3,420 feet | $.29/year | SamTrans | Sprint | Runs along railroad right-of-way |
| 26 | SM366 | Overhead fiber optics running along Southern Pacific right-of-way near Ravenswood Avenue in Menlo Park | 12/94 | $300/year | 725 feet | $.41/year | SamTrans | Sprint | Runs along railroad right-of-way |
| 27 | SC1 | Underground fiber optics between Mountain View and Sunnyvale along Southern Pacific right-of-way | Mid-1995 | $45,144 /yr | 5.7 miles | $1.50/year | SamTrans | Brooks Fiber | Runs along railroad right-of-way |
| 28 | AL376 | A 40 mile corridor extending through Pleasanton and other areas of Southeast Alameda County | 12/95 | $369,600 /yr | 40 miles | $1.75/year | Alameda County | GST Telecom | Runs along old Southern Pacific right-of-way |
| 29 | CC3 | A 20 mile corridor extending through San Ramon and other areas of Southern Central Contra Costa County | 12/95 | $184,800 /yr | 20 miles | $1.75/year | Contra Costa County | GST Telecom | Runs along old Southern Pacific right-of-way |
| 30 | SM/SC385 | Underground fiber optics between San Mateo and Mountain View along Southern Pacific right-of-way | 04/97 | $180,576 /yr | 18 miles | $1.80/year | SamTrans | Brooks Fiber | Runs long railroad right-of-way |

PURPOSE OF THE SUPPLEMENT:

A Market Survey was prepared July 8, 1997 for the granting of Fiber Optic Easements located in Southern Washington and Southeastern Washington. This supplement is a continuation of the Market Survey for the granting of Fiber Optic Easements in Oregon, more specifically, the Fiber Optic Easements being requested by WorldCom, Inc., and FTV - LLC (a.k.a. Touch America).

The WorldCom easement is a continuation of the fiber optic line connecting Seattle Washington to Salt Lake City, Utah, and beyond. The FTV easement is a line running from Portland, Oregon to Salt Lake City, Utah, to Phoenix, Arizona to Los Angeles, California, then back to Portland, Oregon. The cable will cross National Forest System Lands; approximately 34 miles on the Mount Hood National Forest and approximately 3 miles on the Ochoco National Forest, then into Idaho and Utah.

SUMMARY OF PREVIOUS MARKET SURVEY:

The WorldCom fiber optic cable follows existing logging roads through various timber companies and private landowners, as well as along the abandoned Old Milwaukee railroad right-of-way, presently owned by the State of Washington Parks and Recreation Commission, the State of Washington Department of Natural Resources, or the US Forest Service. The existing easements acquired by WorldCom are 10 foot, nonexclusive easements, with compensation based on linear feet. This includes the temporary use of an additional 10 feet for the actual installation of the cable.

Through discussions with various grantors of the easements, and a search of the King County Courthouse, a range of $.90 to $5.00 per linear foot was determined, with a recommendation of $2.00 per linear foot for the Forest Service Fiber Optic Easement.

NEW VALUATION:

The scope of the new valuation process entailed discussions with various County and State Officials, and a search in the following County Courthouses: Wasco, Umatilla, Union, and Baker Counties. Clackamas County was also searched; however, of the easements have not been recorded as of this date. The search included both Easements to WorldCom, and easements to FTV-LLC all within Northern Oregon . Susan Hathaway-Marxer, of Portland Parks and Recreation furnished a copy of a report on fiber optic easements completed for them. and Oregon Department of Fish and Wildlife also provided substantial input, all of which have been incorporated in this report.

The following is a partial list of those easements found from each County that have been verified by the Grantors:

| COMPARABLE EASEMENTS TO WORLDCOM | | | | | | |
|---|---|---|---|---|---|---|
| NO. | EASE DATE | COUNTY | LENGTH | SALE PRICE | $/LIN FT | REMARKS |
| 1 | 1996 | Umatilla | 13,200 | $21,150 | $1.53 | Included $8,000 damages |
| 2 | 1996 | Umatilla | 18,894 | $19,400 | $1.03 | No damages included. |
| 3 | 1996 | Umatilla | 20,526 | $102,630 | $5.00 | Included $82,104 in damages |
| 4 | 1996 | Umatilla | 4,919 | $65,000 | $8.13 | Includes damages. Landowners estimate, with $25,000 removed for a regeneration station |
| 5 | 1996 | Umatilla | 3,500 | $17,500 | $5.00 | Includes $14,000 damages |
| 6 | 1996 | Union | 1,389 | $1,389 | $1.00 | He said he did not know going rate, so settled with what they offered him. |
| 7 | 1996 | Union | est. 4 miles | $20,175+ | $5 to $8 | He signed a paper that he would not discuss actual compensation. He said it was definitely within the range of $5 to $8 per lin. ft. |
| 8 | 1996 | Union | est. 1 mile | $22,000 | $4.17 est. | Within a corridor with many other utility easements. He held out for the higher rate. |
| 9 | 1996 | Union | 5,977 | $5,977 | $1.00 | WorldCom was to pay damages, but never did. Within corridor with 7 other easements |
| 10 | 1996 | Baker | est. 1 mile | $10,000 | $1.89 | Includes $4,600 for claims (damages). |
| 11 | 1996 | Baker | est. 2 miles | $21,000 | $2.00 | Plus damages. $700 estimate to replant alfalfa. |
| 12 | 1996 | Baker | 3 miles + | $16,000 est. | $1.00 | Flat fee offered by WorldCom. |
| 13 | 1996 | Baker | 3,700 | $12,000 | $3.24 | Included a temporary easement plus damages. |
| 14 | 1996 | Baker | 5,280 est | $3,200 | $.61 | Along an existing R/W. It didn't all go on his property, no effect to his land. |

Some of the recorded easement deeds quote the easement value at $1.00 per linear foot.

however, discussions with the sellers proved the consideration to be considerably more. Reasons of Income tax purposes, and keeping the market down by WorldCom were cited.

These comparable easements indicate a range of $0.61 to $8.13 per linear foot for a long term easement. The dominate range is $1.00 to $5.00 per linear foot, all a one time fee.

Most of the easements limit the use to 1 conduit, 1 cable; most are perpetual easements; and most are within existing utility easements, roads, or railroad rights-of-way. Other easements include pipeline easements, other fiber optics cables, and electrical power.

Two additional comparables were located for regeneration stations, which are required as power boosters for the cables, and are located every 50 to 75 miles. In Union County, an agreement for one regeneration station, 100' x 100', sold for $17,000. In Umatilla County, an agreement for two buildings sold for $25,000.

The following comparable easements are granted to FTV- LLC.

| COMPARABLE EASEMENTS FTV-LLC | | | | | | |
|---|---|---|---|---|---|---|
| NO. | EASE DATE | COUNTY | LENGTH | SALE PRICE | $/LIN FT | REMARKS |
| 15 | 1998 | Multnomah | ? | | $2.72/yr | within Portland City Limits 20 year term with an escalation clause |
| 16 | 1998 | Wasco | ? | | $2.72/yr | Copied the City of Portland 20 year term with an escalation clause based on the CPI |
| 17 | 1998 | Wasco | 16,238' | $16,238 | $1.00 | ODF&W, Was a forced consideration by the Governors Office. 10 year term, thru timbered lands. |
| 18 | 1998 | Wasco | 3 mi. + | | $1.00 | 40 year term. Thru timber lands. One line, no expansion, no timber |
| 19 | 1998 | Wasco | 1/4 mi. est | | $1.00 | 40 year term. Thru rural property. One line, no expansion |
| 20 | 1998 | Multnomah | 472' | $7,000/yr | $1.32/yr | Outside Portland City limits, along existing trail. Includes an escalation clause. |

FTV, as WorldCom, started the negotiations based on $1.00 per linear foot, only they requested a 40 year easement. As indicated above, not all settled for the initial offer.

The Comparable easements granted to FTV indicate $1.00 per linear foot for a one time fee, or $1.32 to $2.72 per year for a 10 to 20 year term.

The City of Portland, Parks and Recreation, shared a survey completed by an "intern" on various fiber optic easements, leases, or permits throughout the country. The actual date of the report is unknown. The following is a table of the information provided. I did not verify the sales myself, I am including them for overall information and consideration.

| COMPARABLE EASEMENTS / LEASES OR PERMITS - OTHER | | | | | | | |
|---|---|---|---|---|---|---|---|
| NO | DATE | CO. | AREA | LENGTH | SALE PRICE | $/LIN FT | REMARKS |
| 21 | 1993 | US Sprint | Seattle | 2.5 miles | $40,000 | $3.03 | 5 year term, part of "rails to trails" project |
| 22 | 1993 | AT&T | Seattle | 12 miles | $600,000 | $9.42 | 20 year term |
| 23 | 1993 | US West | Salt Lake City | 1.5 | $1200/yr | $0.15 | 5 year lease. Local Company, regulated by PUC |
| 24 | 1986 | AT&T | Virginia | 35 miles | $250,000/yr | $1.33/yr | 20 year lease |
| 25 | 96 or 97 | US Sprint | Seattle | 2.25 miles | $6900/yr | $0.58/yr | 10% per year escalation, 5 year renewable lease |
| 26 | 96 or 97 | US Sprint | Seattle | 6.2 miles | $1,456,000 | $44.78 | 25 year term<br>$728,000 for permit ($22.24 / ft)<br>$189,000 permit fee<br>$400,000 add trail<br>$89,000 retaining walls<br>$50,000 park improvements<br>$1,456,000 total |
| 27 | 96 or 97 | US Sprint | University of WA | 1.7 miles | $113,000 | $12.59 | Installed fib. Opt cables in facilities of University in exchange. |
| 28 | 1984 | US Telecom | Wisconsin | 48 miles | $375,000 | $1.48 | Perpetual easement, paved 48 miles of trail for exchange of the easement |
| 29 | 1986 | NW Bell | Iowa | 3 miles | $12,000 | $0.76 | Perpetual Easement |
| 30 | 1982 | MCI | DC to NY | ? | $20,000/mi | $0.19/yr | Plus 4 "fiber pairs" which is sold to various entities by Amtrack. 20 year lease |
| 31 | 1997 | AT&T | Mass. Bay Transit | 28 miles | $220,000/yr | $1.49/yr | 2 yr. Lease with option for 3rd yr renewal |
| 32 | 1997 | MCI | Mass. Bay Transit | 50 miles | $351,000/yr | $1.33/yr | 2 yr. Lease with option for 3rd yr. Renewal |
| 33 | 1997 | Sprint | Mass. Bay Transit | 20 miles | $186,000 | $1.70/yr | 2 yr. Lease with option for 3rd yr. Renewal |

Most of the grantors are local or state governments, railroad companies, or transportation departments. Comparable Easements 7 and 8 provide for work in exchange for the easements instead of monetary compensation.

The easements are as far back as 1984 from various parts of the country. They indicate $0.15 to $3.03, one time fee, or $.58 to $1.70 per year for a 5 year term or less. Easements for a term of 5 years or more indicate a range of $0.76 to $44.78 per linear foot, one time fee. The norm appears to be over $10.00 per linear foot for the long term easements. It also indicates (with 2 comparables) a range of $0.19 to $0.58 per linear foot per year for the longer term easements.

The easements are all granted to common carriers, with the exception of Comparable no. 23, and are not regulated by the Public Utility Commission. The local phone companies are regulated, and have the right of condemnation. They also acquire easements, and typically pay $0.10 to $0.15 per linear foot, as indicated by no. 23 on the last chart, and other comparables listed in the appraisers file.

The fiber optic lines that can be located along existing, rural roads or trails are considered prime by the companies and their customers. It is a tremendous market boost, since they can virtually guarantee uninterrupted service. Cables that are buried within city limits compete with other utilities, such as sewer, water, traffic lighting, etc.; and are exposed often, creating problems with the cables. The companies prefer to use trails or existing rural roads since they know that no major digging will be taking place along a trail and installation and maintenance is easier along a trail than along an active rail right-of-way or an abandoned right-of-way whose future disposition is uncertain. The WorldCom line lies adjacent and within an abandoned railroad right-of-way through an extensive area of Washington and Oregon, however, this railroad has been converted into a trail, and was either released to an adjacent landowner, or purchased directly by different entities.

The easement documents themselves have differing clauses limiting the number of cables, requiring provisions for restoration of the easement area, access provision, temporary construction easements, maintenance terms, etc. Two representative copies of a typical easement are attached to the back of this report.

CONCLUSION

Nationwide, from Portland, Oregon to the Massachusetts Bay Transit Authority out of Boston, sellers are using the fiber optic easements as a source of revenue. The cable companies are reluctant to bury separate cables for use by different entities, such as schools or cities, but they have done this as a last resort to get the easements.

People of the rural areas are hit quickly by the companies negotiators, and are not considered informed sellers. Those that have dealt with other companies previously, or have been

informed by others, seem to hold out for the higher compensation. One grantor signed an affidavit that he would not discuss his compensation for the fiber optic easement with anyone.

The comparable sales indicate the following ranges:

WORLDCOM: conclusion, $1.00 to $5.00 per linear foot, one time fee, for a long term easement.

FTV-LLC: $1.00 per linear foot one time fee for a long term easement, or $1.32 to $2.72 per linear foot per year.

VARIOUS COMPANIES: $0.15 to $3.03 per linear foot, one time fee, for a 5 year term or less, or $0.58 to $1.70 per linear foot per year. OR $0.76 to $44.78 per linear foot for a one time fee for a long term easement (Around $10.00 per linear foot is dominant), or $0.19 to $1.33 per year for a long term easement.

The combined range, eliminating the high and the low figures, indicate the following ranges:

$1.00 to $10.00 per linear foot, one time fee for long term easements
$.58 to $2.72 per linear foot per year for permits or leases.

RECOMMENDATION:

Considering the differing elements of the easements,the differing needs of the Grantors of these easements, the location of the easements or permits requested from the Federal Government, I feel the previous recommendation of $2.00 per linear foot for a longer term (over 5 years) easement is appropriate. In addition, I feel that $1.00 per linear foot per year would be appropriate for a permit or lease, with a term less than 5 years.

THE CENTER FOR APPLIED RESEARCH, INC.

July 2, 2001

Mr. David Chapman
Senior Economist
National Oceanic & Atmospheric Administration
1305 East-West Highway, Suite 10218
Silver Spring, MD 20912

Dear Mr. Chapman:

In the spring of 2000, the Center for Applied Research completed for NOAA the report "Establishing the Value of Permits for Fiber Optic Installations in National Marine Sanctuaries," relying on financial and operational data on fiber optic and telecommunications businesses for the years 1998 and 1999. Since that report was completed, U.S. businesses in general--and the fiber optics and telecommunications sectors in particular--have experienced significantly lower earnings than in 1999. In light of these circumstances, you have asked whether the Center would modify the findings in our 2000 report. In a word, our conclusion is that we would not.

The Center's Enterprise Income-Based Approach to fiber optic right-of-way valuation is based on the premise that companies seeking to install fiber optic lines do so in the expectation of long-term profitability well above the depressed rates encountered in 2000. If a company seeks to install a fiber optic line in a National Marine Sanctuary, we conclude that it expects that profitability on that line will equal or exceed the high rates experienced in 1998 and 1999, not the much lower rates of 2000 and early 2001. In general, companies make capital investment decisions on the basis of comparative profitability of the asset vis a vis all other potential investments. If a company concludes that submarine fiber optic cables will contribute to overall profitability at or above average rates, it will invest in those cables; if it concludes otherwise, it will not. A landowner would be wise to base valuation decisions on the bullishness of the long-term future, not the bearishness of the recent past.

Also, the general downturn in telecom profitability is not uniform, but varies significantly from company to company and, within a company, among its business components. It appears from a preliminary analysis of current industry conditions that telecom companies' submarine assets retain a higher profitability than their land-based long-haul fiber lines.

Finally, conventional wisdom manifested through the financial press is that the current downturn in telecom profitability is cyclical, and will likely rebound in future periods. Among the reasons for a recovery in long-haul fiber optic operations is the prospect for accelerated (and perhaps explosive) growth in demand when end users (business and residential) improve their access to high-speed and capacity-intensive telecom uses. If, for example, fiber to the home becomes a cost-effective reality, the demand for capacity in all components of the fiber infrastructure (including both land-based and submarine long-haul networks) will almost certainly expand significantly. This future scenario is among the expectations of profitability that might motivate an applicant for a submarine fiber optic permit.

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For these reasons, the Center for Applied Research continues to believe that the calculations of value in our May 2000 report remain useful for consideration by the National Marine Sanctuaries Program. As we noted in our work effort for NOAA, we believe that the process of estimating value must be continuously monitored and the values calculated for NMS permits will be modified from time to time as long-term conditions warrant. However, we continue to believe that values for prospective permits should be based as closely as possible on the profitability expectations of applicants, and not on periodic market aberrations or cyclical (and short-term) downturns in the overall economy.

Sincerely,

Robert F. Robinson
Senior Economist

cc: Eric English

# Establishing the Value of Permits for Fiber Optic Installations in National Marine Sanctuaries

*Prepared for:*

The National Oceanic and Atmospheric Administration

Office of Ocean and Coastal Resource Management

*Prepared by:*

The Center for Applied Research, Inc.

Denver, Colorado

*May 28, 2000*

# Establishing the Value of Permits for Fiber Optic Installations in National Marine Sanctuaries

***Prepared for:***

The National Oceanic and Atmospheric Administration
Office of Ocean and Coastal Resource Management

***Prepared by:***

The Center for Applied Research, Inc.
Denver, Colorado

*May 28, 2000*

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## PREFACE

This monograph has been prepared by the Center for Applied Research in consultation with The Ackerson Group and affiliates, (including Fitzgerald and Associates of British Columbia, Canada). Any errors and/or omissions in this document are solely the responsibility of the Center for Applied Research.

## I. Purpose of this Monograph

The purpose of the monograph is to provide the National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management (OCRM) with valuations for two separate, five year fiber optic permits for projects requiring access to the Olympic Coast and Monterey Bay National Marine Sanctuaries (NMS). The projects of interest are the Pacific Crossing-1 (PC-1) fiber optic project, which crosses the Olympic Coast NMS, and the Global West fiber optic project, which crosses the Monterey Bay NMS.

This monograph, including the valuations for the PC-1 and Global West fiber optic permits, incorporates changes from the May 15, 2000 draft based on NOAA/OCRM project team comments and additional research and analysis by the Center for Applied Research. The monograph is intended to support and expand on permit valuation goals and concepts presented in a NOAA "White Paper".

## II. Overview of the Enterprise Income-Based Model

The Center for Applied Research, Inc. has developed and employed an Enterprise Income-Based Model to supplement traditional appraisal methods for valuing right-of-way corridors that are not subject to condemnation through eminent domain. The Model apportions to a landowner (i.e., to the land) a share of the profits, or net income, earned by an enterprise (or by a representative selection of enterprises) whose operations require rights-of-way, such as for a pipeline, an electric transmission line or a fiber optic cable. This approach calculates the portion of overall net income allocated to the segment of infrastructure on a parcel of land (generally measured as a percentage of the enterprise's total infrastructure length), and determines the land's share of this allocated income. Other factors considered in the Model and associated analysis include the impact of the infrastructure on the land, the importance of the subject land parcel to the company's overall development, the cost of building around the subject land, and other relevant factors.

The Enterprise Income-Based Model requires first an understanding of the market in which the right-of-way applicant operates, both from the perspective of the specific enterprise and of the industry as a whole. The profitability of the project is first measured relative to the financial conditions of the enterprise at the level that most closely resembles its presence on the subject land. For example, if a proposed fiber optic line would serve only a limited regional market, the revenue and expenditures related to that limited market are used where possible to estimate project profitability and land value.

However, two features of fiber optic development necessarily require that this scope of analysis be expanded to include a larger market: (1) the proposed infrastructure connects the local or regional area to a national or global network, thereby rendering the project a regional extension of a national or global market; and (2) many fiber optic project developers are either newly-formed companies or joint ventures of more established companies, currently in an "investment phase" period of start-up losses but anticipating later net income returns. To address these issues, in specifying the Enterprise Income-Based Model the global fiber optic market is examined to determine an appropriate level of expected net income to impute to the subject enterprise, and to determine the appropriate share of that allocated income to attribute to the property.

In the Model, the allocation of net income to a parcel of land is a function of the "proportion of presence" of the enterprise or the industry on the subject land. In the case of longitudinal facilities such as natural gas pipelines, power lines and fiber optic lines, the measure of relative presence is generally the length of line on the subject parcel compared with the total length of line serving the market under study or, in the case of a national fiber optic network, the total length of fiber optic lines in the network.

Finally, the Enterprise Income-Based Model attributes a share of the allocated profit to the land (versus other factors of production). In general, as a beginning point for discussion, it is assumed that the land is entitled to one-half of the attributed profit of the enterprise. Key features of specific projects will influence the final determination of the attribution percentage. As a simplified example, if a pipeline generates $100,000 in annual net income over a 10-mile length, and if one mile is on a parcel under analysis, the income allocated to the subject parcel is $10,000; the

share attributed to the land is one-half of $10,000, or $5,000 per year. The capitalized value of the right-of-way would be the net present value of the $5,000 annual payments over the easement (permit) term (e.g., 20 years), discounted at a rate of interest that the applicant expects as a return on its conservative investments (e.g., 10 percent). Under this example, the net present value of $5,000 payments over a 20-year term, discounted at 10 percent, would equal a capitalized value of about $53,000.

The application of this method to a fiber optic line, although somewhat more complex due to its nature as part of a global network rather than as part of a discrete source-to-market infrastructure system, is nevertheless appropriate, as the method assumes essentially comparable utility and value throughout the entire fiber optic network. Although one might imagine that a mile of the network in urban New York would be more valuable than a mile in rural Wyoming, it can be argued that these locational differences are more appropriately expressed in terms of the share attribution than of the income allocation. That is, the cost of purchasing a mile of glass fiber is essentially the same in New York as in Wyoming, and a fiber optic developer's capital investment decision to buy that fiber is based on the need to extend the overall network in the locations that will optimize the developer's profitability. The Enterprise Income-Based Model assumes that the developer's total profitability is dependent upon the infrastructure extension under consideration, and that the per-mile profitability is therefore consistent with the company's overall capital investment plans. That is, as a general rule, a company (whose capital resources are finite) will invest in projects that will maximize profitability, whether an additional dollar is spent in New York or Wyoming. The attributed share of the per-mile income that a landowner should expect to receive as right-of-way compensation is circumscribed by, among other factors, the locational advantage of the subject land, the costs of building around the subject land, unique environmental impacts, timing considerations, and so forth.

The Attachment to this report contains excerpts of selected U.S. Department of the Interior grants of easements that illustrate the Federal government's acceptance and affirmation of right of way values derived using the net income method.

Section III provides an overview of the Pacific Crossing and Global West projects that serve to illustrate the application of the Enterprise Income-Based Model.

Section IV provides an analysis of the financial results for several selected companies representing a range of size, configuration and profitability in the fiber optic communications industry, and preliminary results of applying the Enterprise Income-Based Model to the two selected projects.

## III. Industry Background and Geography of the PC-1 and Global West Projects

### The PC-1 Fiber Optic Project

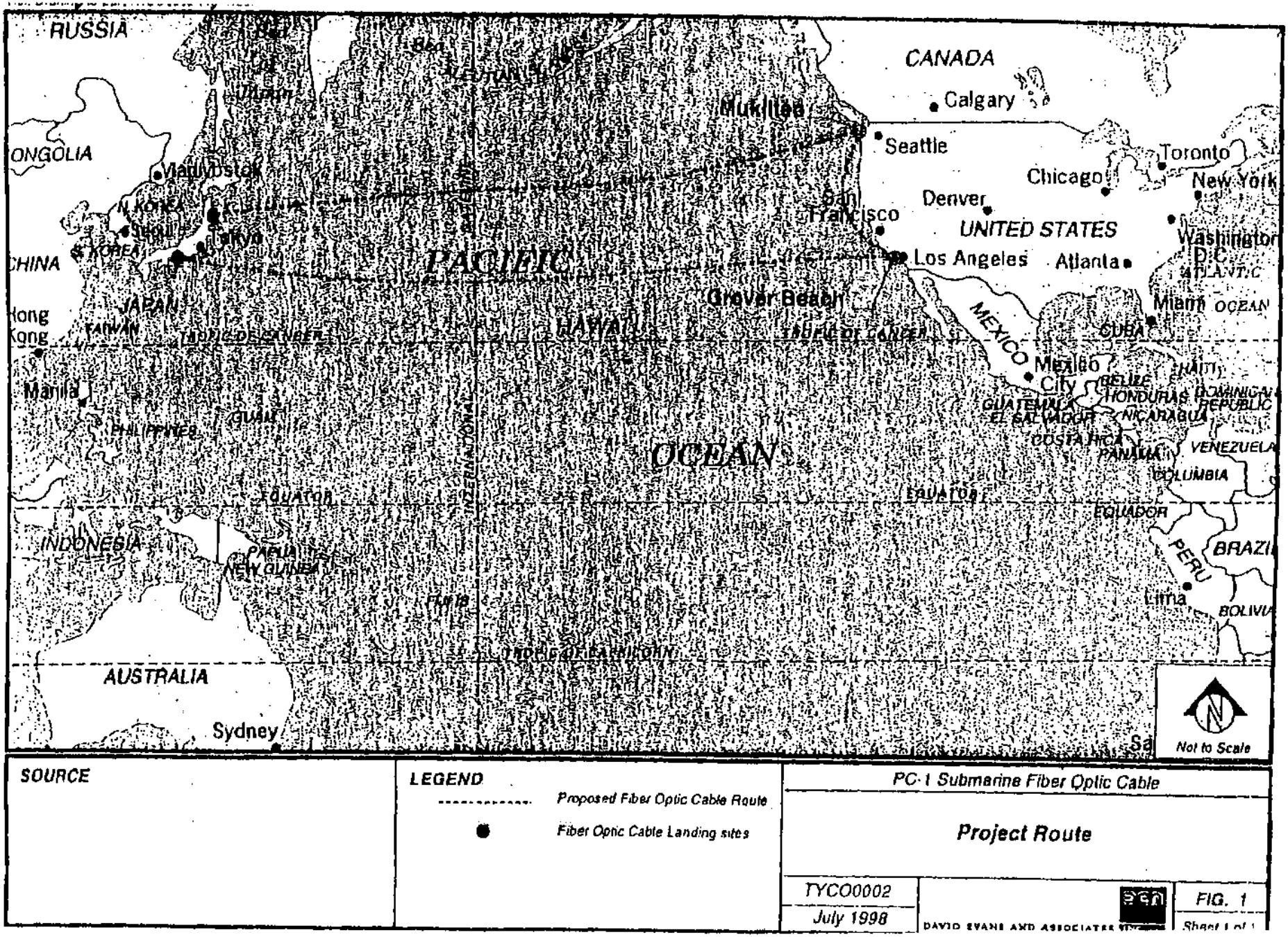
Tyco Submarine Systems, Inc. (Tyco), a subsidiary of Tyco International, Ltd., is the permit applicant. Tyco is installing a submarine fiber optic telecommunications system that will connect Japan with the western United States via a landing site in Seattle, Washington (at Mukilteo) and Grover Beach, California. The entire route consists of approximately 12,900 miles (20,800 Km) of 0.71-inch to 2.5-inch diameter submarine fiber optic cables that run parallel from each of the United States landing sites to two landing sites in Japan. Once the PC-1 project reaches land, it would be connected with the existing telecommunications systems. The design capacity of PC-1 would be enough to carry 10 gigabits per second (Gbps) simultaneous voice or data calls, with a service life of approximately 25 years, and the potential to be upgraded to 640 Gbps.

An important feature of the PC-1 project is to provide diversity and stability to existing telecommunications systems in both Japan and the United States. The parallel cables and the two landing sites in Japan and the two landing sites in the United States insure that, in the event of damage or accident to one line, telecommunications along the cable can be re-routed to the other line, making the system operational at all times. Figure 1 illustrates the basic route of the PC-1 project and shows that the project enters U.S. territorial waters at the mouth of the Juan de Fuca Strait and crosses the northern boundary of the Olympic Coast NMS. According to the U.S. Army Corps of Engineers' environmental assessment, the PC-1 route has been selected to minimize, to the greatest extent possible, impacts on fishing grounds, dredge spoil sites, military activities, and existing and/or planned cabling.

The fact that the PC-1 project crosses the Olympic Coast NMS makes the route somewhat unique and serves to differentiate it from a permit application that simply

affects open ocean waterways. The special status of the Olympic Coast NMS (and of National Marine Sanctuaries in general) and the specific charge NOAA/OCRM has to maintain and manage the resources of the sanctuary in the public's interest, warrant a more in-depth evaluation of the PC-1 project in order to render a value, or range of values, which should be placed on the PC-1 permit. In order to prepare such an analysis, information about the telecommunications industry, and about the telecommunications systems specifically benefitted by the PC-1 project, needs to be compiled.

**Figure 1. Pacific Crossing Fiber Optic Project Route**




| SOURCE | LEGEND | PC-1 Submarine Fiber Optic Cable |
|---|---|---|
| | Proposed Fiber Optic Cable Route<br>Fiber Optic Cable Landing sites | **Project Route** |
| | | TYCO0002<br>July 1998<br>DAVID EVANS AND ASSOCIATES INC. |
| | | FIG. 1<br>Sheet 1 of 1 |

FIGURE 1

Figure 1. Pacific Crossing Fiber Optic Project Route

**The Global West Project**

Global Photon Systems, Inc. (Global Photon) is the permit applicant for the Global West fiber optic project. The Global West project is a high-capacity telecommunications system capable of transporting voice, data, video, cable TV, Internet traffic, and other digital data. The system is comprised of a fiber optic cable that would be buried along the California coastline 3 to 12 miles offshore that would be brought to land at seven separate sites -- San Diego, Los Angeles, Santa Barbara, San Louis Obispo, Monterey, San Jose, and San Francisco.

Currently, all high-speed telecommunications access along the California coast is available only through terrestrial systems along the U.S. 101 corridor. The Global West system serves several important purposes. First, it will provide high-speed transport to and from the "International Gateways" in San Luis Obispo by providing important connections and redundancy to the existing telecommunications systems connecting the major cities of the California coastline. Second, is anticipated that the Global West system will alleviate congestion on the existing telecommunications networks and will provide for expansive growth in the telecommunications industry and in the anticipated need for increased telecommunications capacity to support traffic from north to south along the California coast. Third, the Global West system will provide important security and reliability not present in the existing terrestrial system by protecting the California telecommunications network from damage, such as a natural disaster (e.g., an earthquake).

The proposed route for the Global West system consists of five sea cable segments and seven landing sites (an extra site in Monterey is required to avoid the Monterey Canyon) that totals approximately 920 km of undersea cable. Figure 2 illustrates the route for the Global West project from San Francisco to San Diego, which includes five continuous sea cable segments:

1. San Francisco to Monterey Bay ( 150 km);
2. Monterey Bay to Estero Bay (San Luis Obispo near Morro Bay) (210 km);
3. Estero Bay to Santa Barbara (220 km);
4. Santa Barbara to Manhattan Beach (150 km);
5. Manhattan Beach to San Diego (190 km).

**Figure 2. Global West Fiber Optic Project Route**

Figure 2. Global West Fiber Optic Project Route

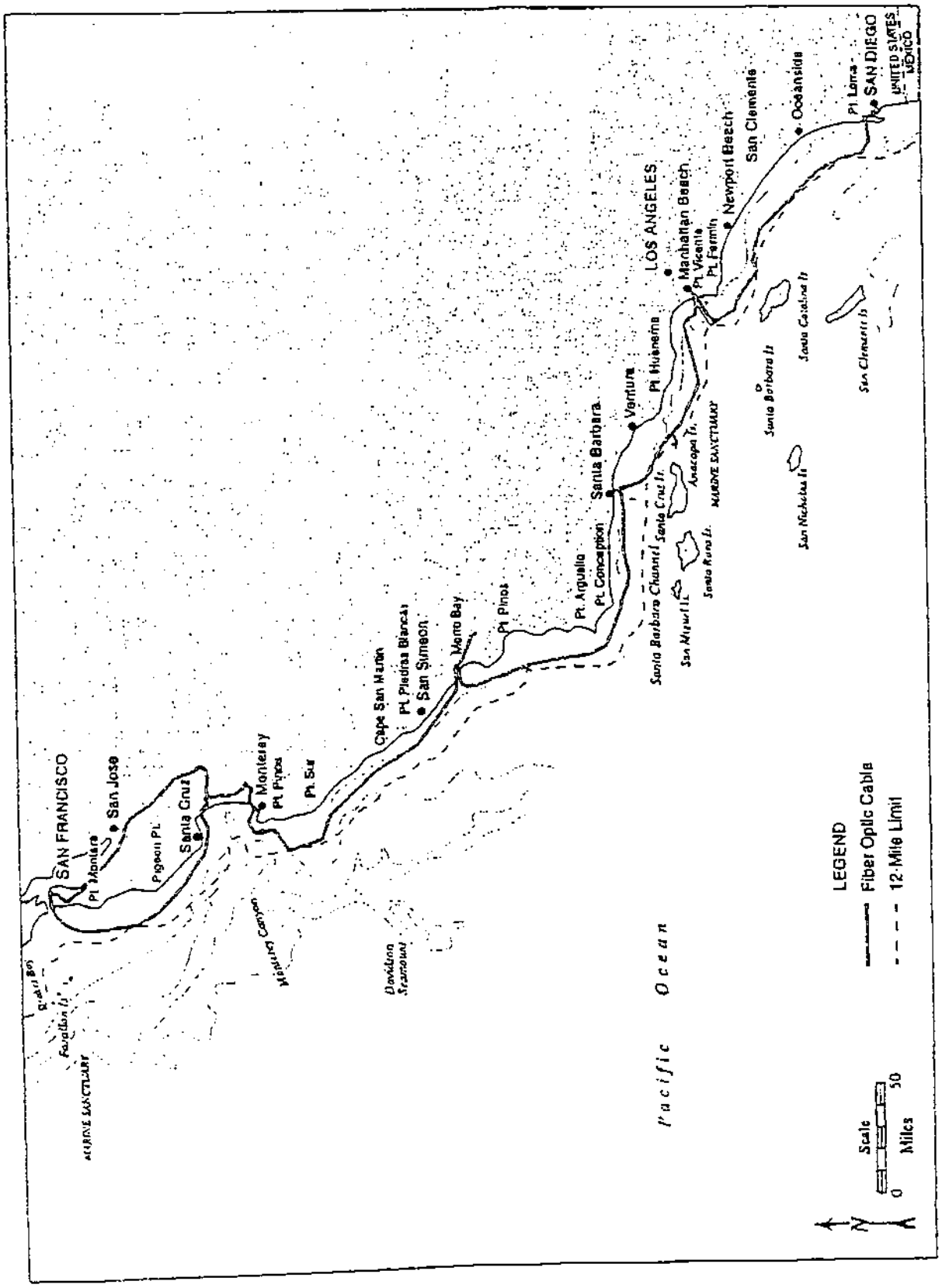



**Figure 2.1-1. Global Photon Cable Route from San Francisco to San Diego**

FIGURE 2

Because the Global West project affects the Monterey Bay NMS and serves several important, diverse objectives, the NOAA valuation of the subject permit must reflect the unique status of the Monterey Bay NMS and the strategic purposes and value of the Global West system.

## IV. Utilizing the Enterprise Income-Based Model to Determine National Marine Sanctuary Permit Values

Table IV-1 contains certain corporate financial and operational data that have been used in the Enterprise Income-Based Model to calculate the permit values for the Pacific Crossing I and Global West fiber optic projects. The entities selected represent a range of size, configuration and maturity among businesses currently involved in installing and maintaining fiber optic lines for telecommunications.

Companies were selected for inclusion in the valuation model based on the availability during the study period of reliable information on the mileage of fiber infrastructure, expressed as either route miles or fiber miles. Route miles represent the number of miles of right-of-way in which fiber is laid, and fiber miles represent the total length of glass fiber in the network (equal to the route miles times the number of fibers in each route mile). Excluded from the analysis are those companies in the "investment phase" of development, in which capital costs overwhelm current revenues in anticipation of future profitability.[1] In 1998, revenues for the selected US companies ($162.9 billion) represented approximately 66 percent of total revenues ($246.4 billion) among telecommunications companies in the United States.[2]

The companies selected for this study include three broad types: (1) those whose fiber infrastructure includes primarily long distance, long-haul terrestrial routes; (2) those whose fiber assets support primarily regional or local telecommunications; and (3) those whose assets are devoted more or less equally to long distance and local communications. The first two categories include primarily US companies whose business have emerged or evolved since the break-up of AT&T (including regional Bell operating companies or RBOCs, other incumbent local exchange carriers or

---

[1]Table IV.I. reflects data acquired as of May 21, 2000.

[2]Federal Communications Commission, *Telecommunications Industry Revenue: 1998*, September of 1999.

ILECs, and competitive local exchange carriers or CLECs), and the third includes primarily international companies developing a mixture of local service (operating under a variety of regulatory regimes) and long distance service that includes significant undersea assets. Although this categorization is complicated by the large number of intercompany and international alliances and joint ventures, it can help explain some of the variability in per-mile profitability, particularly in the short run. It is a basic premise of this analysis that the dynamic evolution of business associations within and among countries and companies, as well as the tendency toward global deregulation, will lead to a convergence in rates of return to capital investment in fiber—national vs. international, terrestrial vs. undersea, and local vs. long-haul.

Table IV-1 thus includes a range of data collected to date for utilization in the valuation model. Data included in the table is listed by telecommunication company:

Column 1: ***Gross revenues for communications units.*** This column shows the reported receipts of corporate units that include some telecommunications services, including wireline-based services (local or long-distance) as well as wireless services. "Wireless" services are included because calls made from or to mobile telephones inevitably include some wireline transmission, and usually a substantial majority of the length of transmission between callers is by wireline. The first two items in column 1 are reported gross revenues for fiscal years ending in 1999 (including many unaudited quarterly corporate reports obtained during the first quarter of 2000), compared with 1998 for the same units; the third unit in column 1 is the percentage change from 1998 to 1999. In many cases, companies have undergone reorganization, acquisitions or divestitures between periods. The data reported in column 1 is generally adjusted by the company to include only continuing operations.

Column 2: ***Gross revenues for all units.*** This column shows the reported receipts of all corporate units for each company, including 1998 vs. 1999 comparisons.

Column 3: ***Communications units revenue as percentage of total revenues.*** This column shows the results of dividing column 1 by column 2.

Column 4: ***Net income excluding extraordinary items.*** This column shows the reported net income of companies after taxes, interest expenses, depreciation and amortization, but before extraordinary items such as gains from sale of outside stock, writeoffs of major assets or other items not related to current period primary operations.

Column 5: ***Fiber line percentage of net income.*** As an indicator of the importance of fiber optic infrastructure to the selected companies, we have used the following factors for attributing the contribution of fiber optics to net income: for companies that are essentially fiber optic network developers, 100 percent; for companies whose business is predominantly devoted to long distance and Internet backbone operation, 90 percent; for regional Bell operating companies (RBOCs), other incumbent local exchange carriers (ILECs), competitive LECs, and their extended operations, 70 percent; and for companies whose business is predominantly devoted to wireless communications, 40 percent.

Column 6: ***Net income attributable to fiber lines.*** This column shows the results of multiplying column 4 by column 5.

Column 7: ***Infrastructure miles.*** This column shows the mileage of fiber optic infrastructure for each reporting company. As this table suggests, the availability of usable measures of infrastructure length is sporadic and even those companies that report fiber length generally indicate only route mileage or fiber mileage, but not both. Although this inconsistency presents some complication for the analysis, the data available can be used to test alternative measures of valuation. Column 7 shows total route miles or fiber miles for each selected company (with fiber miles indicated by underlining) .

Column 8: ***Net income per mile.*** This column shows the results of dividing column 6 by column 7. Income per fiber mile is indicated by underlining; income per route mile is not underlined.

Using the information in Table IV-I (excluding companies showing net losses), an average income per route mile of $28,564 per year and an average income per fiber mile of $835 per year has been calculated. Using an attribution factor of 50 percent (i.e., attributing to the land or to the seabed one-half of the net income earned by the infrastructure), the attributed value per year would yield a value for compensation to the NMS of $14,282 per route mile or $418 per fiber mile.

**Table IV.I.**

## Profits Attributable to Fiber Optic Lines
## Selected Companies, 1998-1999

Sources: The Center for Applied Research, Inc., 2000, based on sources identified

| | 1 | | | 2 | | | 3 | | 4 | | | 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gross revenues for communications unit(s) | | | Gross revenues, all units | | | Comm. unit % of gross | | Net inc, excl extraord items | | | Fiber line % of net | | Net attr to |
| | 1999 | 1998 | % change | 1999 | 1998 | % change | 1999 | 1998 | 1999 | 1998 | % change | 1999 | 1998 | 1999 |
| *Alltel* | *$4,421* | *$3,839* | *15.2%* | *$6,302* | *$5,627* | *12.0%* | *70.1%* | *68.2%* | *$822* | *$660* | *24.6%* | *70%* | *70%* | *$576* |
| *AT&T* | *$59,572* | *$51,902* | *14.8%* | *$62,391* | *$53,223* | *17.2%* | *95.5%* | *97.5%* | *$5,450* | *$5,235* | *4.1%* | *90%* | *90%* | *$4,905* |
| BCE | $12,583 | $12,405 | 1.4% | $12,583 | $12,405 | 1.4% | 100.0% | 100.0% | $1,300 | $1,275 | 2.0% | 90% | 90% | $1,170 |
| *Bell Atlantic* | *$30,707* | *$29,205* | *5.1%* | *$33,174* | *$31,566* | *5.1%* | *92.6%* | *92.5%* | *$4,202* | *$2,965* | *41.7%* | *70%* | *70%* | *$2,941* |
| *Bell South* | *$22,934* | *$21,119* | *8.6%* | *$25,224* | *$23,123* | *9.1%* | *90.9%* | *91.3%* | *$3,825* | *$3,359* | *13.9%* | *70%* | *70%* | *$2,678* |
| British Telecom | £14,086 | £13,287 | 6.1% | $16,953 | $15,640 | 8.4% | 83.1% | 85.0% | £3,474 | £3,461 | 0.4% | 90% | 90% | £3,127 |
| Broadwing | $1,032 | $885 | 16.6% | $1,032 | $885 | 16.6% | 100.0% | 100.0% | $339 | $290 | 16.9% | 100% | 100% | $339 |
| *Cable & Wireless* | *£7,484* | *£6,634* | *12.8%* | *£7,944* | *£7,001* | *13.5%* | *94.2%* | *94.8%* | *£1,648* | *£1,651* | *-0.2%* | *90%* | *90%* | *£1,483* |
| Cable & Wireless HKT | $31,415 | $34,047 | -7.7% | $32,411 | $35,041 | -7.5% | 96.9% | 97.2% | $13,142 | $14,315 | -8.2% | 90% | 90% | $11,828 |
| CapRock | $193 | $122 | 58.2% | $193 | $122 | 58.2% | 100.0% | 100.0% | $0 | -$4 | -105.3% | 100% | 100% | $0 |
| Centurytel | $1,008 | $961 | 4.8% | $1,143 | $1,092 | 4.7% | 88.2% | 88.1% | $238 | $194 | 22.7% | 70% | 70% | $167 |
| China Telecom | | | | | | | | | | | | | | |
| Covad | | | | | | | | | | | | | | |
| Deutsche Telekom | | | | | | | | | | | | | | |
| France Telecom | € 27,233 | € 24,645 | 10.5% | € 27,233 | € 24,645 | 10.5% | 100.0% | 100.0% | € 2,768 | € 2,299 | 20.4% | 90% | 90% | € 2,491 |
| Global Crossing | $3,972 | $2,591 | 18.8% | $4,292 | $3,739 | 14.8% | 71.6% | 69.3% | -$169 | $56 | -401.8% | 100% | 100% | -$169 |
| *GTE* | *$25,336* | *$23,299* | *8.7%* | *$25,336* | *$23,299* | *8.7%* | *100.0%* | *100.0%* | *$3,412* | *$2,974* | *14.7%* | *70%* | *70%* | *$2,388* |
| Hellenic Telecommunications | | | | | | | | | | | | | | |
| ICG Communications | | | | | | | | | | | | | | |
| IMPSAT Fiber Networks | | | | | | | | | | | | | | |
| Japan Telecom | | | | | | | | | | | | | | |
| Korea Thrunet | | | | | | | | | | | | | | |
| Level 3 | $515 | $392 | 31.4% | $515 | $392 | 31.4% | 100.0% | 100.0% | -$487 | -$128 | 280.5% | 100% | 100% | -$487 |
| MATAV Hungarian Telecom | | | | | | | | | | | | | | |
| *MCI WorldCom* | *$33,341* | *$28,683* | *16.2%* | *$33,835* | *$29,126* | *16.2%* | *98.5%* | *98.5%* | *$3,865* | *$1,243* | *210.9%* | *90%* | *90%* | *$3,479* |
| McLeod USA | | | | | | | | | | | | | | |
| Metromedia Fiber Network | | | | | | | | | | | | | | |
| ni Communications | | | | | | | | | | | | | | |
| on Telegraph & Telephone | JPY 7,746,000 | JPY 7,535,000 | 2.8% | JPY 9,730,000 | JPY 9,450,000 | 3.0% | 79.6% | 79.7% | JPY 176,576 | JPY 823,900 | -78.6% | 90% | 90% | JPY 158,920 |
| NorthEast Optic Network | | | | | | | | | | | | | | |
| Orange plc | | | | | | | | | | | | | | |
| Pathnet | $1 | $1 | 94.0% | $1 | $1 | 94.0% | 100.0% | 100.0% | -$19 | -$11 | 65.1% | 100% | 100% | -$19 |
| Philippine Long Distance | | | | | | | | | | | | | | |
| Portugal Telecom | | | | | | | | | | | | | | |
| *Qwest Communications* | *$3,928* | *$2,243* | *75.1%* | *$3,928* | *$2,243* | *75.1%* | *100.0%* | *100.0%* | *$459* | *-$844* | *-154.3%* | *100%* | *100%* | *$459* |
| RCN | | | | | | | | | | | | | | |
| *SBC Communications* | *$49,489* | *$46,207* | *7.1%* | *$49,489* | *$46,207* | *7.1%* | *100.0%* | *100.0%* | *$6,573* | *$7,735* | *-15.0%* | *70%* | *70%* | *$4,601* |
| Sprint FON Group | $17,016 | $15,764 | 7.9% | $17,016 | $15,764 | 7.9% | 100.0% | 100.0% | $431 | $454 | -5.1% | 90% | 90% | $388 |
| Stet Hellas Telecomm | | | | | | | | | | | | | | |
| Swisscom | | | | | | | | | | | | | | |
| TeleDanmark | | | | | | | | | | | | | | |
| Telecom Argentina STET | | | | | | | | | | | | | | |
| Telecom Corp New Zealand | | | | | | | | | | | | | | |
| Telecom Italia | | | | | | | | | | | | | | |
| Telecom de Sao Paulo | | | | | | | | | | | | | | |
| Telefonica SA | | | | | | | | | | | | | | |
| Telefonica de Argentina | | | | | | | | | | | | | | |
| Telefonica de Peru | | | | | | | | | | | | | | |
| Telefonos de Mexico | | | | | | | | | | | | | | |
| US West | $13,182 | $12,395 | 6.3% | $13,182 | $12,395 | 6.3% | 100.0% | 100.0% | $1,102 | $1,508 | -26.9% | 70% | 70% | $771 |
| Williams Communications | $2,041 | $1,765 | 15.6% | $2,041 | $1,765 | 15.6% | 100.0% | 100.0% | -$318 | -$193 | 64.9% | 100% | 100% | -$318 |
| Winstar Communications | | | | | | | | | | | | | | |

| | |
|---|---|
| *Total revenue, selected US companies (million)* | *$262,658* |
| *Total revenue, US telecom companies (million)* | *$246,392* |
| *Percentage of US telecom revenues* | *82.3%* |
| | |
| *Average annual net income per* | |
| *-Route mile* | *$28,564* |
| *-Fiber mile* | *$855* |

| per unit 1998 | Route miles or Fiber miles 1999 | 1998 | Net income per mile 1999 | 1998 | % change | Sources |
|---|---|---|---|---|---|---|
| $462 | 13,500 | | $42,648 | | | Alltel, 1999 annual report and corporate data, website; Center calculations |
| $4,712 | 53,000 | 41,000 | $92,547 | $114,915 | -19.5% | AT&T, 1999 annual report and corporate data, website; Center calculations |
| $1,148 | | | | | | BCE, 1999 annual report, website; Center calculations |
| $2,076 | 5,100,000 | 4,500,000 | $577 | $461 | 25.0% | Bell Atlantic, 1999 4th quarter report and corporate data, website; Center calculations |
| $2,351 | 2,000,000 | 1,700,000 | $1,339 | $1,383 | -3.2% | Bell South, 1999 annual report and corporate data; Center calculations |
| £3,115 | | | | | | British Telecom, summary financial statement and business review for year ended March 31, 1999, website; Center calculations |
| $290 | | | | | | Broadwing, 1999 4th quarter report and corporate data, website; Center calculations |
| £1,486 | 285,830 | | £5,189 | | | Cable & Wireless, profit and loss account and corporate data, year ended 31 March 1999, website; Center calculations |
| $12,884 | | | | | | Cable & Wireless HKT, profit and loss account and corporate data, year ended 31 March 1999, website; Center calculations |
| -$4 | 3,000 | 800 | $74 | -$4,426 | -101.7% | CapRock, 1999 4th quarter report and corporate data, website; Center calculations |
| $136 | | | | | | Centurytel, 1999 4th quarter report and corporate data, website; Center calculations |
| | | | | | | |
| € 2,069 | | | | | | France Telecom, 1999 consolidated financial highlights, website; Center calculations |
| $56 | | | | | | Global Crossing, 1999 4th quarter report and corporate data, website; Center calculations |
| $2,082 | 147,387 | | $16,205 | | | GTE, 1999 annual report and corporate data, website; Center calculations |
| | | | | | | |
| | | | | | | |
| -$126 | 8,000 | | -$60,875 | | | Level 3, 1999 annual report and corporate data, website; Center calculations |
| | | | | | | |
| $1,319 | 45,000 | | $77,300 | | | MCI, 1999 4th quarter report and corporate data, website; Center calculations |
| | | | | | | |
| | | | | | | NTT, annual report and corporate data, year ended March 31, 1999, website; Center calculations |
| | | | | | | |
| -$11 | 6,800 | 2,000 | -$2,739 | -$5,641 | -51.4% | Pathnet, 1999 4th quarter report and corporate data, website; Center calculations |
| | | | | | | |
| -$844 | 3,400,000 | | $135 | | | Qwest, 1999 annual report and corporate data; Center calculations |
| | | | | | | |
| $5,415 | 5,000,000 | | $920 | | | SBC, 1999 annual report and corporate data; Center calculations |
| $409 | | | | | | Sprint, 1999 4th quarter report and corporate data, website; Center calculations |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| $1,056 | | | | | | US West, 1999 annual report and corporate data; Center calculations |
| -$193 | 25,679 | 18,671 | -$12,391 | -$10,337 | 19.9% | Williams, 1999 annual report and corporate data; Center calculations |

## A. Applying the Enterprise Income-Based Model to the PC-1 Olympic Coast Sanctuary Fiber Optic Project

The Pacific Crossing I route through the Olympic Coast NMS includes about *30* miles for Segment N and about *35* miles for Segment E (based on maps included in Appendix A of the PC-I Environmental Assessment). Using this estimate of 65 route miles, times the Enterprise Income-Based Model per-mile factor of $14,282 per route mile, would yield an attributed income estimate of $928,335 per year. For a 25-year term and assuming a 10 percent discount rate, the present value of attributed income for cable within the Olympic Coast NMS would total $8,426,444 using the route-mile factor

Using the fiber mile factor, the factor of $418 would be multiplied by 520 fiber miles for the Pacific Crossing 1 project (65 route miles times 8 fibers per cable), yielding an estimate of annual attributed income of $217,122. Over the permit period, and using the 10 percent discount rate, the present value of the Pacific Crossing 1 project permit in the Olympic Coast NMS would be $1,970,826 using the fiber-mile factor.

## B. Applying the Enterprise Income-Based Model to the Global West and Monterey Bay Sanctuary Project

The Global West route through the Monterey Bay NMS includes about *135* miles for the San Francisco to North Monterey Bay (La Selva Beach) segment and about *100* miles for the South Monterey Bay (Fort Ord) to San Luis Obispo (Estero Bay) segment of the line (based on maps in Appendices A and C to the draft Global West Environmental Impact Report). Multiplying 235 route miles times the Enterprise Income-Based Model factor of $14,282 per route mile, the total attributed income for cable within the Monterey Bay NMS is $3,356,252 per year attributed to the seabed. Over the 25-year permit period and using the 10 percent discount rate, the present value of the Global West project permit in the Monterey Bay NMS would be $30,464,835 using the Enterprise Income-Based Method and the route-mile factor.

Using the fiber-mile method, the factor of $418 would be multiplied by 5,640 fiber miles for the Global West project (235 route miles times 24 fibers per cable). This would equal $2,354,940 per year attributed to the seabed. Over the permit period, using a 10 percent discount rate, the present value of the Global West project permit in the Monterey Bay NMS would be $21,375,885 using the fiber-mile factor.

## V. A Comparative Analysis of Other Fiber Optic Rights-Of-Way Transactions

This section presents a consolidated analysis of precedent fiber optic right of way transactions. The purpose of the analysis is to formulate comparative values to those presented in the preceding section (i.e., obtained from the Enterprise Income-Based Model). This is done by deriving a common unit of measure by which the values of various fiber optic rights of way can be compared. The heart of the analysis is revealed in Column 7 in Table V-I which expresses the values of selected fiber optic rights of way in terms of U.S. dollar compensation per mile per year.[3]

[3]Table V-I consolidates fiber optic transaction data derived from right-of-way settlements in which the Center for Applied Research has been directly or indirectly involved.

**Table V.I.**

**TABLE V-1: Table of Precedent Transactions Reflecting Values Derived From Net Income Model**
**May, 2000**
**Source: The Center for Applied Research, Inc.**

| Grantor | Grantee | Date | Location | Use | Length | Compensation/ Mile/Year | Term | Total Monetary Compensation |
|---|---|---|---|---|---|---|---|---|
| Hinshaw Class Action | AT & T | 1999 | Indiana | Fiber Optic | 80 miles | $4,930 | 20 yrs | $3.6 million |
| Isleta Indian Reservation | Qwest | 1997 | New Mexico | Fiber Optic | 8 miles | $12,073 | 10 yrs | $1 million |
| Isleta Indian Reservation | USWest | 1999 | New Mexico | Fiber Optic | 14 miles | $10,222 | 10 yrs | $700,000 |
| Isleta Indian Reservation | AT & T | 1999 | New Mexico | Fiber Optic | 8 miles | $51,653 | 10 yrs | $4.7 million |
| Isleta Indian Reservation | Public Service Company of New Mexico (PNM) | 1997 | New Mexico | Electric Transmis. Line | 8 miles | $41,909 | 20 yrs | $400,000 |
| San Felipe Indian Reservation | Qwest | 1997 | New Mexico | Fiber Optic | 14 miles | $2,909 | 25 yrs | $400,000 |
| Santo Domingo Indian Reservation | Qwest | 1997 | New Mexico | Fiber Optic | 15 miles | $2,715 | 25 yrs | $4 |
| Acoma Indian Reservation | USWest | 1998 | New Mexico | Fiber Optic | 12 miles | $3,101 | 25 yrs | $300,000 |
| Santa Ana Indian Reservation | Qwest | 1997 | New Mexico | Fiber Optic | 6 miles | $4,242 | 25 yrs | $250,000 |
| **Average:** | | | | | | $10,269 | | |

The average[4] of the various transactions listed in Table V-1 ($10,269 per mile per year) has been applied to the NMS mileage in the two subject permits to obtain values for the two five year permits.[5]

Applying this average of $10,269/mile/year to the Olympic Coast NMS, for example, yields a value of a 25-year permit in the Olympic Coast NMS of $6,058,788 and the value of a 25-year permit in the Monterey Bay NMS of $21,904,849 (at an assumed discount rate of 10 percent). These values compare to the income-based values of $1,970,826-$8,426,444 and $21,375,885-$30,464,835 respectively, for the two NMS permits.

Tables V.II and V.III below, summarize these alternative calculations of permit values, citing the data utilized.

**Table V.II. Route Mile and Fiber Mile Permit Values**
(Source: The Center for Applied Research, based on 1998, 1999 corporate data.)

| Value Basis | PC-1 Olympic Coast NMS | Global West-Monterey Bay NMS |
|---|---|---|
| Route Mile | $8,426,444 | $30,464,835 |
| Fiber Mile | $1,970,826 | $21,375,885 |
| Comparative Transaction Per Mile Factor | $6,058,788 | $21,904,849 |

[4]The average was computed by taking the equivalent payment per year and dividing it by the mileage associated with each transaction.

[5]This valuation does not include amenity values that may be associated with any given NMS. Also, these values do not reflect present value discount factors. See Section IV calculations that incorporate present value discounting for the proposed five-year permit periods.

**Table V.III. Route Miles, Fiber Miles, and Net Income by Company**
(Source: The Center for Applied Research, based on 1998, 1999 corporate data.)

| Company | Corporate Net Income (millions) | Route Miles | Average Net Income Per Mile Per Year |
|---|---|---|---|
| Alltel-1999 | $576 | 13,500 | |
| AT&T-1999 | $4,905 | 53,000 | |
| C&W | $2,390 | 285,830 | |
| MCI/WC | $3,479 | 45,000 | |
| Totals | $11,349 | 397,330 | $28,564 |
| **Company** | **Corporate Net Income (millions)** | **Fiber Miles** | **Average Net Income Per Mile Per Year** |
| Bell Atlantic-1999 | $2,941 | 5,100,000 | |
| Bell South-1999 | $2,678 | 2,000,000 | |
| GTE | $2,388 | 147,387 | |
| Qwest Communications | $459 | 3,400,000 | |
| SBC Communications | $4,601 | 5,000,000 | |
| Totals | $13,067 | 15,647,387 | $835 |

**Attachment**
**Representative Language from U.S. Department of the Interior Grants of Easements Utilizing Income-Based Rights-of-Way Values**

OFFICE OF THE GOVERNOR

505-869-3111 / 6333
FAX: 505-869-4236

# PUEBLO OF ISLETA

P.O. BOX 1270 ISLETA, NM 87022

**Resolution # 98- 52**

At a duly called meeting of the Tribal Council of the Pueblo of Isleta held on the 13th day of October, 1998, the following resolution was adopted:

WHEREAS, the Pueblo of Isleta ("the Pueblo") is a federally-recognized tribe that acts through its governing body, the Tribal Council, which is charged with decision making in all matters relative to tribal natural resources and the general welfare of the tribe and its tribal members;

WHEREAS, the Pueblo and AT&T Communications of The Mountain States, Inc. ("AT&T") have reached agreement regarding the terms and conditions of:

(1) the Pueblo's consent to the Secretary of the Interior to grant the renewal easement for right-of-way in accordance with the Renewal Grant of Easement for Right-of-Way ("Renewal Grant") that is attached hereto, such grant to be made pursuant to 25 U.S.C. §§ 323-328 and 25 C.F.R. Part 169; and

(2) the Pueblo of Isleta Easement Agreement ("Easement Agreement") that is Exhibit A to the Renewal Grant;

WHEREAS, the Tribal Council has utilized a method for determining the fair market value of both the initial renewal payment of $683,000 (for the initial one-year renewal period from October 17, 1998 through October 16, 1999) and the option renewal payment of $4,000,000 (for the nine-year option renewal period from October 17, 1999 through October 16, 2008) based upon the projected profitability of Grantee's usage of the rights-of-way;

WHEREAS, the Tribal Council believes that it is in the Pueblo's best interests to give the foregoing consents and to execute the Easement Agreement;

WHEREAS, the Tribal Council is satisfied that all of its interests, including tribal jurisdictional interests, are adequately protected in the Renewal Grant and the Easement Agreement;

NOW, THEREFORE, BE IT RESOLVED that the Tribal Council hereby consents: (1) to the Secretary of the Interior's execution of the Renewal Grant; and (2) to execution by the Governor of the Pueblo of the Easement Agreement;

BE IT FURTHER RESOLVED that the Governor of the Pueblo is authorized to execute the Easement Agreement and to take any and all such other action as may be necessary in connection with the Easement Agreement and the Renewal Grant; and

BE IT FURTHER RESOLVED that the Tribal Council of the Pueblo of Isleta hereby authorizes and directs the Superintendent of the Southern Pueblos Agency, Bureau of Indian Affairs to execute the Renewal Grant.

## CERTIFICATION

We, the undersigned as tribal officials of the Pueblo of Isleta, do hereby certify that the foregoing Resolution was passed at a duly called meeting of the Tribal Council of the Pueblo of Isleta, held on the 13 day of October, 1998, at which time a quorum was present, with 8 voting yes, 0 opposing, and 0 abstaining.

President of the Council

Governor

ATTEST:

Acting Secretary of the Council

Attachment: Renewal Grant of Easement for Right-of-Way



P:\3775.001\misc\resolution at&t 1998 renewal.wpd

TRIBE: Pueblo of Isleta
BIA DOC NO. M20 705 46 002 0322
(Renewal of 82 0143 8898)

# RENEWAL
# GRANT OF EASEMENT FOR RIGHT-OF-WAY

RECITALS:

A. The United States of America, acting by and through the Superintendent, Southern Pueblos Agency, Bureau of Indian Affairs, Department of the Interior, Albuquerque, New Mexico (hereinafter referred to as "Grantor") under authority contained in 10 BIAM 4, Section 2.11, Albuquerque Area Office Redelegation Order 2, Amendment 2, Federal Register February 26, 1976, and pursuant to the provisions of the Act of February 5, 1948 (62 Stat. 17, 25 U.S.C. 323-328), and Part 169, Title 25, Code of Federal Regulations, in consideration of $150,000.00, and other good and valuable consideration as stipulated in the Pueblo of Isleta (hereinafter referred to as the "Pueblo") Tribal Resolution No. 88-40 dated October 17, 1988, did on April 24, 1989 grant to AT&T Communications of The Mountain States, Inc. (hereinafter referred to as "Grantee") the right, easement and privilege to construct, operate and maintain a one-inch underground fiber optic cable with necessary appurtenances thereon or therein, together with the right of ingress and egress when necessary for the above mentioned purposes, in a right-of-way five (5) feet in width on the east side of the Rio Grande River (hereinafter referred to as "East Side Right-of-Way") and a right-of-way five (5) feet in width on the west side of the Rio Grande River (hereinafter referred to as "West Side Right-of-Way") located on tribal lands of the Pueblo in the Counties of Bernalillo and Valencia, State of New Mexico, as described in the Grant of Easement for Right-of-Way approved April 24, 1989 and identified as Doc. No. 82 0143 8898 (hereinafter referred to as "1989 Grant").

B. Grantor did on April 19, 1991 amend the 1989 Grant, as consented to in the Pueblo Tribal Resolution No. 91-17 dated March 26, 1991, by amending a portion of the legal description for the right-of-way on the West Side Right-of-Way and the entire legal description for the East Side Right-of-Way as described in the Amended Grant of Easement for Right-of-Way approved April 19, 1991 and identified as Doc. No. 82 0143 8898 (hereinafter referred to as "1991 Amended Grant").

C. The Pueblo and Grantee have entered into an agreement pursuant to which they have agreed that Grantor shall immediately grant to Grantee a renewal easement for said right-of-way for a term of one (1) year commencing October 17, 1998 and ending October 16, 1999 (hereafter referred to as the "Initial Renewal Grant") and an option for

a further renewal easement for right-of-way for a term of nine (9) years commencing October 17, 1999 and ending October 16, 2008 (hereinafter referred to as the "Option Renewal Grant").

D. Pursuant to 25 U.S.C. §§ 323-328 and 25 C.F.R. Part 169, the Pueblo and Grantee have agreed to the fair market value of the Initial Renewal Grant and the Option Renewal Grant, as further set forth herein. In accordance with such valuation, payments to the Pueblo by Grantee have been calculated and established as further set out below. The Grantor, therefore, has accepted the resulting amounts of consideration as set forth in this Renewal Grant.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That Grantor, under authority contained in 209 DM 8, Secretary's Order Nos. 3150 and 3177, as amended, *10 BIAM Bulletin 13, as amended, AAO Addendum Release No. 9401*, and pursuant to (1) the provisions of the Act of February 5, 1948 (62 Stat. 17, 25 U.S.C. 323-328), (2) Part 169, Title 25, Code of Federal Regulations, (3) the Easement Agreement effective as of October 17, 1998, between the Pueblo and Grantee, a copy of which (without its Attachment 1) is attached hereto as Exhibit A (hereinafter referred to as the "Easement Agreement"), and (4) Resolution No. 98-52 dated October 13, 1998, of the Tribal Council of the Pueblo, for and in consideration of the payments set forth herein and the obligations set forth in the Easement Agreement does hereby grant to Grantee with principal offices at 1875 Lawrence Street, Denver, Colorado 80202 the renewal right, easement and privilege to operate and maintain a one-inch underground fiber optic cable with necessary appurtenances thereon or therein as currently constructed and installed, together with the right of ingress and egress when necessary for the above mentioned purposes, in a right-of-way five (5) feet in width on East Side Right-of-Way and a right-of-way five (5) feet in width on the West Side Right-of-Way located on tribal lands of the Pueblo in the Counties of Bernalillo and Valencia, State of New Mexico, as legally described in the 1991 Amended Grant (hereinafter referred to as the "Right-of-Way");

TO HAVE AND TO HOLD the said renewal easement for right-of-way unto the Grantee and unto its successors and assigns, together with the right of ingress and egress to permit the operation, maintenance, inspection, protection and repair thereof, subject, however, to the conditions, covenants and agreements to be kept, observed and performed by Grantee as follows:

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

TRIBE: Pueblo of Isleta
BIA DOC NO. M20 705 41 002 0312

# GRANT OF EASEMENT FOR RIGHT-OF-WAY

RECITALS:

1. On August 4, 1958, the Acting General Superintendent of United Pueblos Agency, a Bureau of Indian Affairs, Department of the Interior, Albuquerque, New Mexico, approved a Grant of Easement for Right-of-Way to West Emerald Pipe Line Corporation, a subsidiary of The Shamrock Oil and Gas Corporation, for a term of 20 years beginning August 4, 1958, for a petroleum products pipeline, said right-of-way being 40 feet wide, a distance of 20.034 miles and containing 97.14 acres, more or less, across land of Isleta Pueblo in section 1, Township 7 North, Ranch 4 East, New Mexico Principal Meridian, Valencia County, New Mexico; sections 5, 6, 8, 9, 14, 15, 16, 23 and 24, Township 7 North, Range 5 East, New Mexico Principal Meridian, Torrance County, New Mexico; sections 7, 18 and 19, Township 7 North, Range 6 East, New Mexico Principal Meridian, Torrance County, New Mexico; sections 3, 10, 11, 13, and 14, Township 8 North, Range 3 East, New Mexico Principal Meridian, Bernalillo County, New Mexico; sections 18, 19, 20 and 21, Township 8 North, Range 4 East, New Mexico Principal Meridian, Bernalillo County, New Mexico; and sections 27, 28, 35 and 36, Township 8 North, Range 4 East, New Mexico Principal Meridian, Valencia County, New Mexico.

2. By Letter of Approval dated October 11, 1979, the Acting Superintendent of Southern Pueblos Agency, Bureau of Indian Affairs, Department of the Interior, Albuquerque, New Mexico approved a renewal of the grant of easement for right-of-way to West Emerald Pipe Line Corporation, a subsidiary of Diamond Shamrock Corporation (formerly The Shamrock Oil and Gas Corporation), for a term of 10 years beginning August 4, 1978.

3. Pursuant to Resolution No. 88-38 passed by the Tribal Council of the Pueblo Isleta on September 26, 1988, the Acting Superintendent, Southern Pueblos Agency, Bureau of Indian Affairs, Department of the Interior, approved effective October 7, 1988 a Renewal of Grant of Easement for Right-of-Way to West Emerald Pipe Line Corporation, a subsidiary of Diamond Shamrock, Inc. (formerly Diamond Shamrock Corporation) for a term of ten (10) years beginning August 4, 1988.

4. The Pueblo of Isleta and West Emerald Pipe Line Corporation, a subsidiary of Ultramar Diamond Shamrock Corporation (formerly Diamond Shamrock, Inc.) have entered into an agreement pursuant to which they agree that the United States of America, acting by and through the Superintendent, Southern Pueblos Agency, Bureau of Indian Affairs, Department of the Interior, Albuquerque, New Mexico, shall immediately take action to the effect that, effective March 1, 1998, the Renewal of Grant of Easement that it approved effective October 7, 1988, shall be converted into this Grant of Easement for Right-of-Way for an initial term of twenty (20) years beginning March 1, 1998, together with an option for a twenty (20) year renewal term thereafter. Pursuant to 25 U.S.C. §§ 323-328 and 25 C.F.R. Part 169, the Pueblo of Isleta and West Emerald Pipe Line Corporation have accepted and utilized a method for determining the fair market value of this Grant of Easement for Right-of-Way based upon the projected profitability of the enterprises enabled by the Grant of Easement for Right-of-Way. In accordance with such method of valuation, the one-time payment for the first pipeline described in the Grant of Easement for Right-of-Way and the payment for activation of the second pipeline described in the Grant of Easement for Right-of-Way have been calculated as the present value of a mutually agreed upon portion of the net income that West Emerald Pipe Line Corporation and its affiliates are projected to receive from the transportation and sale of petroleum products during the initial and renewal terms of the Grant of Easement for Right-of-Way. The Bureau of Indian Affairs of the Department of the Interior, therefore, has accepted the resulting amounts of consideration as set forth in the Grant of Easement for Right-of-Way.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That the United States of America, acting by and through the Superintendent, Southern Pueblos Agency, Bureau of Indian Affairs, Department of the Interior, Albuquerque, New Mexico (hereinafter referred to as "Grantor"), under authority contained in 209 DM 8, Secretary's Order Nos. 3150 and 3177, as amended, *10 BIAM Bulletin 13, as amended, AAO Addendum Release No. 9401*, and pursuant to (1) the provisions of the Act of February 5, 1948 (62 Stat. 17, 25 USC 323-328), (2) Part 169, Title 25, Code of Federal Regulations, (3) the Easement Agreement effective as of October 6, 1997, between the

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

TRIBE: Pueblo of Isleta
BIA DOC NO._____

# RENEWAL GRANT OF EASEMENT FOR RIGHT-OF-WAY

(Renewal of BIA DOC. NO. M20 705 41 002 0278)

RECITALS:

On March 1, 1995 the Superintendent, Southern Pueblos Agency, Bureau of Indian Affairs, U.S. Department of the Interior, Albuquerque, New Mexico (hereinafter "Grantor") approved a grant of easement for right-of-way to Chevron Pipe Line Company (hereinafter "Grantee") identified as BIA DOC. NO. M20 705 41 002 0278 (hereinafter "1995 Grant") pursuant to Grantee's right-of-way application dated April 8, 1995;

On October __, 1999, Grantee filed a right-of-way application for a five (5) year renewal of the 1995 Grant (hereinafter "1999 Application").

Pursuant to 25 U.S.C. §§ 323-328 and 25 C.F.R. Part 169, the Pueblo of Isleta (hereinafter "the Pueblo") and Grantee have negotiated and have accepted and utilized a method for determining the fair market value of this Renewal Grant of Easement for Right-of-Way (hereinafter "Renewal Grant") based upon the projected profitability of the enterprises enabled by this Renewal Grant. In accordance with such method of valuation, the one-time payment for this Renewal Grant has been calculated as the present value of a mutually agreed upon portion of the net income that Grantee and its affiliates are projected to receive from the transportation and sale of petroleum products during the term of this Renewal Grant. Grantor, therefore, has accepted the resulting amounts of consideration as set forth in this Renewal Grant.

Pursuant to Tribal Council Resolution No. 99-__ dated October __, 1999, a copy of which is attached hereto as Exhibit A, the Tribal Council of the Pueblo approved this Renewal Grant in accordance with the terms and conditions set forth herein.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That Grantor, under authority contained in 209 DM 8, 230 DM 1.3 IAM 4 and AAO Addendum Release No. 9401, and pursuant to (1) the provisions of the Act of February 5, 1948 (62 Stat. 17, 25 U.S.C. 323-328), (2) Part 169, Title 25, Code of Federal Regulations, and (3) the attached Tribal Council Resolution of the Tribal Council

of the Pueblo, for and in consideration of the payments set forth herein and the obligations set forth in Grantee's right-of-way application does hereby grant to Grantee with principal offices at 2811 Hayes Road, Houston, Texas 77082 the renewal right, easement and privilege to operate and maintain a six (6) inch welded metal pipeline for the transportation of petroleum products with necessary appurtenances, as currently constructed and installed, together with the right of ingress and egress when necessary for the above mentioned purposes, in a right-of-way forty (40) feet in width located on tribal lands of the Pueblo in the Counties of Bernalillo and Valencia, State of New Mexico, as legally described in the 1995 Grant (hereinafter "the Right-of-Way");

TO HAVE AND TO HOLD the said renewal easement for right-of-way unto the Grantee and unto its successors and assigns, together with the right of ingress and egress to permit the operation, maintenance, inspection, protection and repair thereof, subject, however, to the conditions, covenants and agreements to be kept, observed and performed by Grantee as follows:

1. The renewal easement for right-of-way conveyed by this Renewal Grant is subject to any prior valid existing right or adverse claim and is for a term of five (5) years beginning on October 7, 1999 and ending on October 6, 2004, so long as said easement shall be actually used for the purposes above specified and the terms of this Renewal Grant are materially complied with.

2. The consideration for the Renewal Grant is Three Million Seven Hundred and Seventy One Thousand Three Hundred and Sixty Two Dollars-US ($3,771,362) deposited with the Secretary to be held in a special deposit account for the benefit of the Pueblo. In addition, Grantee has directly paid the Pueblo the transaction cost reimbursement payment set forth in the attached Tribal Council Resolution.

3. The terms and conditions of this Renewal Grant shall be as set forth in the 1995 Grant and the 1999 Application except that (a) Grantee shall have no additional option to renew, (b) the following additional terms and conditions shall be included, and (c) except where this Renewal Grant is inconsistent with the 1999 Application, in which case, this Renewal Grant shall govern:

A. Subject to the consent requirements set forth in the second sentence of this subparagraph and in accordance with applicable statutes and regulations, Grantee may assign this easement for right-of-way to an assignee that executes a written agreement pursuant to which it agrees to assume and perform Grantee's duties and obligations under this Renewal Grant. Any such assignment is subject to the Pueblo's prior written consent regarding the assignee's financial strength and condition, which the Pueblo shall not unreasonably withhold.

KMI

# METHODOLOGY OF REVENUE-BASED RIGHTS-OF-WAY FEE ESTIMATES IN MARINE SANCTUARIES

September 2000

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**NOTICE**



The information contained herein is based on KMI's in-house databases and includes statistical data compiled from interviews and other reports that we deem reliable, but whose completeness cannot be guaranteed. In no instance has any company proprietary or confidential information provided to KMI by any sources been used in the preparation of this report.

This report is not intended as a guide for the purchase of securities or other investments.

# 1.0 PROJECT OVERVIEW

The National Oceanic and Atmospheric Administration (NOAA) has been tasked with determining what fee or fees it should charge telecommunication carriers who have received permits to install submarine cables in marine sanctuaries. Determining a fair market value for marine sanctuary ROWs (rights of way) is an unusual task. In general, the "wet" portion of undersea installations are not subject to ROW fees. This fact contributes to the economic viability of a technology that is more expensive than terrestrial systems. However, marine sanctuaries are a unique case. The purpose of the NOAA report is not to argue for or against the U.S. government's ability to charge for ROWs in marine sanctuaries, but rather to help determine the fair market value of its ROWs.

One method to determine market value of ROW fees is based on the revenue generated by a particular cable. To facilitate NOAA in determining fair market value of marine sanctuary ROWs, KMI developed a model to determine revenues on transoceanic telecommunications cables. To estimate revenues, KMI took a high-level approach using capacity and average-price data. Revenues were calculated as the amount of available capacity multiplied by an average price per unit of capacity. Revenues were forecast over a five year period.

Because this market is changing rapidly, four scenarios in two different geographic markets, transatlantic and transpacific, were derived. In each of the four different scenarios, the available capacity of the undersea cable is different. These are hypothetical systems based on current technology, but not specific systems. The derived system revenue was based solely on the sale of circuits. While there are a variety of product offerings such as wavelengths and varying circuit sizes, KMI used an STM-1 circuit, 155.5 Mbps, as the standard unit of sale for the model.

## 1.1 CIRCUIT PRICE FORECAST

Two circuit price forecasts were used, one for the Atlantic and one for the Pacific. In both regions, prices were forecast through the year 2007. In the past three years, the general trend in undersea circuit pricing has been steep decline.

KMI maintains data on circuit prices of fiberoptic undersea cable systems throughout the world. The data come from the following sources:

- FCC 214 (and other) filings
- Interviews with network operator
- Interviews with consortia member
- Interviews with carriers purchasing capacity on the network
- Conference proceedings
- Bandwidth exchanges

Bandwidth exchanges are the least relied upon sources. On bandwidth exchanges, the system on which the capacity is available is generally not reported. Until the purchase proceeds, the terms for the capacity are not well defined, making comparisons difficult.

Often times, restoration is not included in the posted prices. These prices do, however, provide benchmarking information.

### 1.1.1 Transatlantic Circuit Prices

From 1996 to 1999, transatlantic STM-1 circuit prices have fallen annually by just over 30%. There are several causes for this decline—more available capacity, the introduction of competition, and a perception of even greater competition in the future. In 1997, the Gemini system came into operation. Although the Gemini system was developed by two carriers, MCI and Cable & Wireless, it was not a traditional consortia-owned system. In 1998, Global Crossing cutover the Atlantic Crossing-1 system and competition and the amount of available capacity increased. In 2000, TAT-14, a consortium cable, came online.

While Gemini, AC-1, and TAT-14 brought in competition and 780 Gbps of new capacity, a third factor contributed to circuit price erosion, the announcement of future systems. Project Oxygen, 360atlantic, FLAG Atlantic-1, and Level 3's Yellow system were all slated to be installed into the Atlantic in short order. Although Project Oxygen is no longer planning to build an undersea network, other system developers have announced plans to build transatlantic systems: most notably, the TyCom system. Carriers looking to purchase capacity in the Atlantic now have options, if they can wait for the new systems to become operational. As capacity becomes more abundant, the motivation to purchase capacity in advance of need is lessening. And, even though the numbers of competitors currently offering capacity is small, there are now multiple companies with sales departments vying for the carriers' future business.

These factors suggest that prices will continue their downward trend. To forecast STM-1 circuit prices through the year 2005, KMI looked at several factors—historical trends, advances in transmission technologies and the number of competing operators along similar routes. With these factors in consideration, KMI forecasts an average STM-1 circuit in the Atlantic will cost $74,000 in 2005. This represents a compound annual growth rate (CAGR) of -48% from 2000.

### 1.1.2 Transpacific Circuit Prices

Like the Atlantic, the Pacific is seeing dramatic circuit price erosion as well. Unlike the Atlantic, the price erosion is greater and following a less smooth path. Because of the shear size of the Pacific, systems are more challenging to design and more costly to build. Despite these factors, the Pacific will soon have more competition than the Atlantic.

In the past, the transpacific fiberoptic undersea cable market was considered to be about two years behind the transatlantic market. The Atlantic was seen as more stable and mature. Now, with four new systems online or coming online by the end of this year—Pacific Crossing-1, Japan-US, China-US, and Southern Cross—the Pacific is on its way to eclipsing the Atlantic. To further this trend, there are four additional transpacific systems announced—FLAG Pacific-1, 360pacific, TyCom, and Golden Thread.

Looking historically at pricing in the Pacific is difficult because TPC-5 was the last system installed before the four mentioned above. TPC-5 is a consortium cable and came online in 1995. Although historical pricing is difficult to gauge, there are multiple data points for current pricing. Based on pricing data from Pacific Crossing-1, Japan-US, and China-US, the average price for a transpacific STM-1 is approximately $5 million. Southern Cross was omitted from this average, as the routing is different. The cost of an STM-1 on the Southern Cross Cable Network starts at $12.9 million. Discounts for larger purchases are given.

KMI forecasts an average transpacific STM-1 circuit will cost $274,000 in 2005. This is a CAGR of –44% from 2000.

## 1.2 UNIT SALES PROJECTION

To derive revenue, KMI applied the circuit prices to four different sales forecasts. The four scenarios are based on differing potential capacities of fiberoptic undersea cables. The capacities used are based on announced technologies by various vendors including TyCom and Alcatel.

In the higher capacity systems, KMI assumed that the potential capacity was not sold completely. Dense Wave Division Multiplexing (DWDM) is the current transmission technology being deployed on fiberoptic undersea cables. DWDM technology allows multiple waves of light to travel down a fiber strand. The number of potential wavelengths has been increasing, as has the transmission speed along these wavelengths. Additionally, the number of fibers in each cable is increasing. These factors (and other technological advances) are allowing the potential capacity of an undersea cable to grow significantly. For example, in 1998 the maximum capacity a transoceanic cable could achieve was 80 Gigabits per second (Gbps). By yearend 2002, a 5.12 Terabits per second (Tbps) cable system is slated to be installed. Therefore, the 2002 cable will have 64 times the potential capacity that the 1998 cable has. Given that the costs for installing a 5.12 Tbps cable are less than 64 times an 80 Gbps cable, the higher capacity cable will be able to achieve higher margins or sell circuits at a lower cost per bit.

It should be noted, however, that 5.12 Tbps is the potential capacity of a cable system. The initial capacity will, in all likelihood, be much less than that amount. DWDM technology allows the system operator to incrementally increase the amount of capacity on the cable system up to its maximum by adding opto-electronic equipment at the shore-ends. A system owner, therefore, can add capacity as needed and reduce the upfront costs.

Because technology is increasing the bandwidth potentials on undersea cable systems rapidly, installing a new system could be less expensive, in terms of cost per bit, than paying to upgrade an older system. With this possibility in mind, KMI forecast that the systems with 1.92 Tbps and greater potential capacity will not sell 100% of their potential capacity. This is not to imply that demand for bandwidth will fall off in the next few

years, but rather that lowest cost capacity will be most desirable and the newer systems will meet the demand. Therefore, 60% of the capacity is assumed to be sold.

### 1.2.1 Pre-sales

Undersea cables were first installed 150 years ago. The first transoceanic fiberoptic undersea cable was installed in 1988. Since 1988, the market has changed dramatically. Undersea cables used to be installed exclusively by consortia of telecom carriers. This model worked well when each country had but one long-distance and international telecommunications operator. The monopoly operator would join the consortia, control the landing station in its country and get half circuits to other countries. The market was not open to competition and all the capacity of a system would be allocated in the planning phase. Today, factors such as deregulation, privatization, an influx of investments and staggering bandwidth demand have altered the telecommunications undersea market.

Non-consortium owned cables have been installed all over the world and more are planned. In this new market, the manner in which capacity is sold is changing. When consortiums controlled the market, a new entrant would have to purchase capacity through a consortia member or wait for the next consortia to be formed and join as a member. Carriers would have months, even years, to plan their capacity needs. Today, a spot market is emerging and the need to buy capacity in advanced is diminishing. Because more capacity is becoming available, carriers can purchase capacity as needed. Carriers still make some advance purchases, as system operators generally offer incentives for such purchases, but not as much as they used to. To reflect this trend, KMI decreased the amount of capacity that was purchased in advance for the newer cables.

## 1.3 PER MILE DERIVATION

Once the revenues of the four different cable systems were forecast, KMI derived an estimate for revenue per mile. Two system lengths were used, one for the Atlantic systems, 14,000 km, and one for the Pacific, 20,000 km. Kilometers were converted to miles and a revenue per mile forecast was created.

## 1.4 ROW ASSIGNMENT

The final step was to assign a percentage of the revenue per mile to the ROW valuation. KMI used 50% of the revenue per mile figure based on terrestrial ROW valuations cited to KMI by NOAA.

## 1.5 MODEL RESULTS

The resulting valuation of the sanctuaries on a per mile basis varies significantly for the Atlantic versus the Pacific. This is a direct result of higher circuit prices in the Pacific. For transatlantic systems, the ROW valuation average was $43,700 per mile. The systems installed in 2000 had a resulting valuation much higher than the 2001 and 2002

installed systems—$76,900 per mile and $67,400 per mile vs. $17,900 per mile and $12,800 per mile.

For transpacific systems, the ROW valuation average was $141,700 per mile. As was the case in the Atlantic, the systems installed in 2000 had a resulting valuation much higher than the 2001 and 2002 installed systems—$214,600 per mile and $167,200 per mile vs. $91,300 per mile and $93,900 per mile.

The table below shows a summary of the results for the four hypothetical systems in both the Atlantic and the Pacific.

| ***Atlantic: Four Scenarios*** | | | | |
|---|---|---|---|---|
| **Hypothetical System** | **Revenue (less cost) in Year 5** | **Revenue / Mile** | **50% of Revenue/mile** | |
| 640 Gbps Atlantic Ring System: 2000 | $3,465,620 | $153,850 | $76,925 | |
| 1.92 Tbps Atlantic Ring System: 2000 | $3,036,422 | $134,796 | $67,398 | |
| 2.56 Tbps Atlantic Ring System: 2001 | $806,703 | $35,812 | $17,906 | |
| 5.12 Tbps Atlantic Ring System: 2002 | $574,975 | $25,525 | $12,762 | |
| | | | **Atlantic Average** | $43,748 |
| | | | | |
| ***Pacific: Four Scenarios*** | | | | |
| **Hypothetical System** | **Revenue (less cost) in Year 5** | **Revenue / Mile** | **50% of Revenue/mile** | |
| 640 Gbps Pacific Ring System: 2000 | $13,810,080 | $429,151 | $214,576 | |
| 1.92 Tbps Pacific Ring System: 2000 | $10,759,049 | $334,340 | $167,170 | |
| 2.56 Tbps Pacific Ring System: 2001 | $5,873,406 | $182,517 | $91,259 | |
| 5.12 Tbps Pacific Ring System: 2002 | $6,045,168 | $187,855 | $93,927 | |
| | | | **Pacific Average** | $141,733 |